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Towards achieving food security in Africa, with special focus on United Nations (UN) Millennium Village Project in Kenya

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Towards achieving food security in Africa, with special focus on United Nations (UN) Millennium Village Project in Kenya

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Dedication

This work is dedicated to the Almighty, the most Merciful and most Beneficent; the beginning and the end that spared me through the course of this project work.

And to my wife Oyeronke Adunni for her invaluable contribution and for standing against all odds, putting her life in my trust and believing so much in me even when I am doubtful of myself

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List of Abbreviations

AIDS: Acquired Immune Deficiency Syndrome

DAP: Diammonium Phosphates

DFID: Department for International Development

EPOPA: Export Promotion of Organic Products from Africa

FAD: Food Availability Decline

FAO: Food and Agricultural Organisation

GDP: Gross Domestic Product

HLS: Household and Livelihood Food Security

HIV: Human Immunodeficiency Virus

IFDRI: International Food Policy Research Institute

IMF: International Monetary Fund

IFOAM: International Federation of Organic Agriculture Movement

IRD: Integrated Rural Development

KOAN: Kenya Organic Agriculture Network

MDBS: Multi Development Budget Support

MDG: Millennium Development Goals

MVP: Millennium Village Project

MOA: Ministry of Agriculture

NGO: Non Governmental Organisation

NOGAMU: National Organic Agricultural Movement of Uganda

NOSB: National Organic Standard Board

ODA: Official Development Assistance

SAP: Structural Adjustment Programme

SL: Sustainable Livelihood

SLA: Sustainable Livelihood Approach

SLF: Sustainable Livelihood Framework

SSA: Sub Saharan Africa

TDADT: Teso District Akukuranut Development Trust

TI: Transparency International

TOAM: Tanzania Organic Agricultural Movement

UN: United Nation

UNDP: United Nation Development Programme

USDA: United State Department of Agriculture

WHO: World Health Organisation

Abstract

Food security is one of the major problems confronting Africa. Poverty has been attributed as the main cause of food insecurity and other associated problems such as hunger, famine, malnutrition, destitution and starvation. Several efforts have been made in the past to rescue Africa from these problems, but most of these effort have not translate to a better life for most especially rural Africans, who comprise of the majority of the African population. Most of the other regions of the world have made tremendous progress towards the food needs of their people and poverty eradication, but most Africans still wallow in extreme poverty. Many factors are responsible for this, most importantly ineffective and poor governance, corruption and several biophysical and economic constrains such as heavy dependency on rain-fed agricultural systems, extremely low productivity of food production, and heavy burden of infectious disease, especially malaria and HIV/AIDS.

For the first time in the history of the world, at the Millennium Summit in 2000, all the world leaders came together to proffer a lasting solution to problems confronting the world and agreed to work together to cut extreme poverty to half by 2015 and also tackled other social economic problems facing the world by formulating Millennium Development Goals. Because of special need and unique nature of Africa the Millennium Village Project was launched in 2004 with the hope that multifaceted nature of poverty in rural Africa can be overcome through targeted public-sector investment to raise rural productivity, which will enhance private saving and investment among the rural Africans. Achieving food security in rural Africa requires more than increase in agricultural productivity, but also the need to empower the villagers so as for them to gain economic power and propel them into the cash economy. From the interaction with the farmers and the project officials it was apparent that some progress has been made towards this, especially the dramatic increase in grain production and setting up of robust markets through the formation of a cereal bank which now guarantees farmers a better price and returns on their produce. However, this is just like a pilot project, the real challenges and the viability of the Millennium Village Project will be tested in the capability for a massive scale-up and the sustainability of the project in the long run.

Chapter One

Introduction

Over the past decades, Africa especially Sub-Saharan Africa has been faced with a numerous developmental issue, but prominent among these is food security problem, and this has attracted lots of attention from both local and the world media. It is now, mostly in the Horn of Africa a common sight on the television to see the pictures of dying children and their mother beamed to the entire world. This is as a result of food related problems, hunger, starvation, famine and destitution. Poverty has been attributed as the main causes of this deplorable calamity. In this world of plenty and technological sophistication it is quite shameful that poverty related problems still affect more than one sixth of the World's inhabitants. More than one billion people live on less than one dollar per day, and up to 830 million people go to sleep every night without food in their stomach (FAO 2006). The majority of these poor people are concentrated is Asia, Latin America and Africa. Whereas Asia and Latin America have made a considerable progress in reducing the proportion of people living in extreme poverty, Africa is still lagging behind, with almost 300 million people living under extreme poverty and hunger.

Much literature on food security has proved that poverty is the root cause of food insecurity. Contrary to the general belief that decline in food production is the cause, decline in food production is not the only cause of food insecurity, which results from a combination of different factors such as inability of people to gain access to food or loss of entitlement. Other factors are important such as high prevalence of disease and infection, civil war, strife, poor and ineffective governance, drought, and over dependency on the climate and environment for agricultural production. Several attempts have been made in the past to salvage this situation and other efforts are been pursued presently. However, most of these efforts have not provided the desired result of lifting people out poverty and freeing them from food insecurity problems.

The problem of food security has becomes a global issue which cannot be solved in isolation by one country, but requires a global strategy. The concerted effort towards this global solution gave birth to the declaration of the Millennium Development Goals (MDGs) serving

as the fulcrum for international development policy by responding to the World's main development challenges and to the call of civil society. The MDGs promote poverty reduction, education, maternal health, gender equality and aim at combating child mortality, AIDS and other diseases (Sachs 2005). Towards achieving food security in Africa and other part of the developing world, eminent scientists, economists and other developmental specialists under the special adviser to the then Secretary-General to the UN, Kofi Annan, Jeffrey Sachs and his team presented their findings, results and recommendations in 2004, in a synthetic format, "Investing in Development. A Practical Plan to Achieve Millennium Development Goals". This gave birth to the launching of the first Millennium Village Project (MVP) in Sauri, Kenya (Sachs 2005).

The Millennium Villages project offers a bold, innovative model for helping rural African communities lift themselves out of extreme poverty. The Millennium Villages themselves are proving that by fighting poverty at the village level through community-led development, rural Africa can achieve the Millennium Development Goals by 2015 and escape from the poverty trap. By applying this scalable model to give them a hand up, not a hand out, people of this generation can get on the ladder of development and start climbing on their own (Faiditti 2004).

1.1. The Purpose of the Study

The overall aim of this study is to evaluate the contribution to food security in Africa of the Millennium Village Project

The specific objectives were

1. To review factors mitigating against food security in Africa

2. To describe the rationale and operation of the Millennium Village Project Village (MVP) initiative with specific reference to Sauri Millennium Village Project in Kenya

3. To evaluate the effectiveness of the Millennium Village Project initiative in Kenya in promoting food security in local communities

1.2. Dissertation Framework

This study was conducted using a combination of literature review to understand the scope, approach and the concept of food security, secondary data collection, interview with the farmers and Millennium Village Project officials, group discussion and observation. The thesis is divided into three main parts, each with a number of chapters. Part one consists of literature review and discourses on the food security issue and its relationship to sustainable and organic agriculture, and also discusses challenges facing food security in Africa. The second part deals with methods employed in the study. The last part contains the results from the study and discussion; and also presents the conclusion and the recommendations.

Chapter Two

2.1. Food Security

The issue of food security has been of significant importance and has been on the public agenda since time immemorial. Maxwell (2001) traced it back to the biblical time. Ever since inception mankind has been very concerned about their food situation. Leisinger, Schmitt, and Rajul (2002:1) traced this concern back to the statement made by a Roman politician as far back as 200 BC "One thing is sure: the Earth is more cultivated and developed now than ever before; there is more farming but fewer forests, swamps are drying up and cities springing up on an unprecedented scale. We have become a burden to our planet. Resources are becoming scarce and soon Nature will no longer be able to satisfy our needs. It will come to pass that disease, hunger flood and war will reduce the excessively large numbers of human species". But this magnificent statement has been partly proved wrong so many times. The population has been growing at an alarming rate and the revolutionary shift in the provision of food from hunting and gathering to agriculture resulted in mankind's dominion of the earth.

Over the ages, the ever growing world population consumed ever-large parts of global resources (Ehrlich and Ehrlich 1990) and frequent doubts were voiced about the Earth's carrying capacity and limit to the human population (Malthus 1994, Smil 1994, Evans 1998). In the past there was concerted effort to look at food security in the global context. If that view was still maintained today there would not be any reason to worry about food security again because enough food is available and produced to feed the whole world (FAO 2002, Leisinger, Schmitt, and Rajul 2002). However, this argument does not hold because more than 800 million people in the world are food insecure (Leisinger. Schimitt and Rajul 2002). Producing enough food in the whole world is not enough to guarantee food for the entire human populace because some of the developed countries of the world produce more than what they can consume and most of the developing countries cannot produce enough to feed their populace. As much as most surplus producing countries would wish to give their surplus to the deprived countries, it is not logistically and economically feasible looking at the cost of distribution coupled with the growing concern over the unsustainable energy use and larger implication for the environment.

2.1.1. Concept of Food Security

From 1970 the concept of food security has shifted from global supply of food (Maxwell 1996). Maxwell (2001) has given a detailed description relating to this historical phase in thinking about food security and this has been captured in three phases. Over thirty definitions as compiled by Maxwell (2001) have been a guiding principle for shaping these phases, from the definition of the World Food Conference of 1975, which defines food security as: availability at all times of adequate world supplies of basic food stuff to sustain a steady expansion of food consumption and to offset fluctuation in production and prices (UN 1975) to the 1991 definition by Frankenberg and Goldstein (1991) which defines food security as the viability of the household as a productive and reproductive unit not threatened by food shortage. These evolutionary thought about food security, as captured by Maxwell (2001:14-20) are:

- Global and the national to the household and the individual
- Food first perspective to a livelihood perspective
- Objective indicator to subjective perception

For the purpose of this study two of the most common and most accepted definitions will be adopted. According to the World Food Summit (WFS) of 1996 held in Rome; "Food security exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life'' (FAO 2006) and the definition by Food and Agricultural Organization (FAO) which states that, "Food security means that food is available at all times, that all person have means of access to it, that it is nutritionally adequate in terms of quality, quantity and variety and that it is acceptable within the given culture'' (Ahmed *et al*. 2007). These two important definitions capture the basis of food security as access to the food required for a healthy life by all people at all times and this requires three dimensions according to Leisinger, Schmitt and Rajul (2002:56); enough high quality food must be available, household and individual must have access to this food, and people must be able to make use of this nourishment with the help of clean water, adequate sanitation and heath care. So the argument of Leisinger, Schmitt, and Rajul (2002) here is that food security is achieved through three essential components: availability, access and utilization (preparation and consumption of food and the

biological capacity of individuals to absorb and utilize nutrients in the food that they eat) Figure 2.1 explains the importance of inter-relationship among these components.

Figure 2.1: Components of food security
Source: (FAO 2002)

Entitlements or access to food are very important because the mere presence of food in the economy or in the market does not entitle a person to consume it (Dreze and Sen, 1989:9). In

most rural parts of the world, especially Africa, people gain entitlements to food through their own production of food, or by exchanging money they earn through payment for their labour for food or through other means such as transfer from kin and relatives. This issue of entitlement will be discuss in broader terms later in the chapter. While explaining food security it is very important as well to dwell on food insecurity because the basis of food security is to avoid food insecurity. Food insecurity sometimes occurred in situation where food was available but not accessible because of erosion of people's entitlement to food (Borton and Shohan 1991). Food insecurity is a situation that exists when people lack secure access to sufficient amounts of safe and nutritious food for normal growth and development and an active and healthy life. It may be caused by the unavailability of food, insufficient purchasing power, inappropriate distribution, or inadequate use of food at the household level.

Food insecurity, poor conditions of health and sanitation, and inappropriate care and feeding practices are the major causes of poor nutritional status. Food insecurity may be chronic, seasonal or transitory (Leisinger, Schmitt, and Rajul 2002). But in theory most nutritionist classify food insecurity into two categories, chronic and transitory food insecurity. Chronic food insecurity can be described as persistent inadequate diet caused by continual inability of household to acquire their food needs either by purchase or through their own production. This is the most common type of food insecurity in Africa. Transitory food insecurity, on the other hand, is a temporary decline in a household or individual access to needed food and is mostly caused by instability or fluctuation in prices, production or labour incomes. Sometimes it might be difficult to distinguish between the two because they are closely intertwined.

2.1.2. Famine, Hunger and Starvation

Despite the rapid advancement of science and technology, and the intervention with the best intention of humanitarian agencies, chronic malnutrition, hunger and starvation continue to afflict more than one out of every six of the world's people. For example, one person out of every four in southern Asia and one out of every two in central Africa suffers from chronic malnutrition (FAO 2002). Famine, hunger and starvation are all closely related, but not the

same. Chronic malnutrition often progresses to hunger and hunger to starvation. More than 300 million Africans are malnourished, and across Southern African alone more than 13 million people in seven countries face imminent starvation (FAO 2002). The World Food Programme also estimates that 24,000 people die from nutrition-related causes daily.

Famine is a social and economic crisis that is commonly accompanied by widespread malnutrition, starvation, epidemic diseases and increased mortality, Devereux (2000) describes famine as a socio-economic process which causes the accelerated destitution of the most vulnerable, marginal and least powerful groups in the community, to a point where they can no longer, as a group, maintain a sustainable livelihood. Klinterberg (1977) describes famine as an event which disrupts the functioning of a community to such an extent that it cannot subsist without external assistance and Wolde-Mariam (1984) attempted to described famine as a process rather than an event, that is, a general hunger affecting large numbers of people as a consequence of non availability of food over a longer period of time. She associated famine with human failure and tragedy. It is easy to accept famine as a process in this regard because it does not strike unexpectedly, but builds slowly over a period of time and is very predictably so therefore is preventable and any attempt not to prevent it always leads to a serious catastrophe and, in this regards, one can describe famine as man-made because for any reason food shortage should not be allowed to develop to the scale of famine and if it does it will be due to the weakness of society in general and that of government in particular.

Famine is a very complex issue and it is very difficult to set a particular rigid theoretical concept in analysing famine. Many attempts have been made in the past to conceptualised famine as a natural disaster, an economic crisis or a complex political emergency (Devereux 2000). Most famines in the past are know to have occurred because of war, drought, crop failure and pestilence, so it might be difficult to deal with famine as a whole without first analysing the cause of it. Most of the literature on famine has provided different approaches and ways of dealing with famine and this depends on the background and perception of who is writing about famine. Devereux (2000) captures the pressure that focuses on those who see famine as an event and those who analyse famine as a process. A climatologist will tend towards analysing famine in terms of the effect of flood and drought, an economist will want to examine famine as the effect of market failure, and most political scientist will examine the

relationship between government policies or civil war and famine, while an environmentalist who is more concerned about the issue of global warming will blame deforestation and desertification as major causes of famine. So many writers have been proposing a unifying ways of looking at famine rather than looking at it in a narrow or disciplinary way. Cannon (1991) and Von Braun, Teklu, and Webb (1998) consider the whole food system of a country or a vulnerable group and examine empirically how shocks to the individual components food production, food distribution and food consumption contribute to specific famines.

Hunger is not famine but it is similar to under-nourishment and is closely related to poverty. Mainly in poor countries, there are always under-nourished and hungry people, for example in Central Africa and the Horn of Africa there has been a consistent seasonal hunger, usually in the months just before the coming harvest. People become weakened as a result of not having had adequate food for days. The core meaning of hunger according to De Waal (1991:68) is the experience of having an empty stomach and is a form of suffering, like feeling cold or tired. Hunger is an outcome of prolonged high rates of unemployment and under-development, growing inequality in terms of wealth and resource distribution and declining value of real wages and welfare benefits or the purchasing power of household or decline of entitlements (Riches 1997). When hunger persists for a longer period of time, covering a large number of the population and resulting in mass migration and death, it then becomes famine. In the past most people have associated hunger with scarcity or not enough food to go around, but the reality of the matter is that in most cases hunger is not caused by the scarcity of food but inability of people to acquire it. Lappe Moore, Collins, and Rosset (1998) argue that enough food grain is produced in the world to provide every human being on the planet with thirty-five hundred calories a day and this estimate does not even put into consideration other commonly eaten foods such as vegetables, beans, nuts, root crops, fruit, meat and fish. So in most cases hunger does not exist only because of scarcity of food but of inability of people to access the food, loss of purchasing power or loss of entitlement. Most literature on famines agreed that famine is not caused by only one thing, but by a combination of different factors, Famine could be triggered by natural disasters like flood or drought but these are not the main causes. For examples flood and drought have triggered a lot of famines in Africa because of the weak economies of the many African countries, but flood has occurred consistently in Britain in the past couple of years and this has not caused any famine or hunger related issue because the economy is stronger and there is effective government and mechanisms to deals with any disruption to people's livelihood

2.2. Poverty

Poverty is a major cause of hunger and starvation, it is a very complex and multidimensional social phenomenon, poverty is not only lack of essential criteria for material affluence, but also of the complete absence of opportunities and choices that are of key importance to human development; a long, healthy, creative life; a reasonable standard of living, freedom and self worth, self respect, and the esteem of others. (Leisinger, Schmitt, and Rajul 2002). Increase in food production over the years has not really translated into hunger reduction. Even in the wake of decline in food prices, people afflicted with hunger have not been able to tap into this opportunity because poverty has incapacitated them or act as a barrier to freeing them from hunger. As argued by Sen (1982), hunger is usually but not exclusively based on the quantity of food generated but also people's access to food. Poverty erodes people's entitlement to food and other basic necessities of life. People who are too poor to provide for themselves using their available productive resources, people whose income cannot sufficiently support them are condemned to hunger even in abundant presence of food; poverty is therefore, a matter of deprivation and inaccessibility of basic needs.

Poverty is a multifaceted concept which is defined in different ways. According to Swanson (1996), poverty in the individual context means a lack of assets and a corresponding lack of income. It implies an increased reliance on the existing assets including natural resources. But some authors emphasise that being poor is more than material deprivation. It is about powerlessness, the rural poor have few or no rights or freedom to improve their position (Daniel 1990, Davidson, Myers, and Chakraborty 1992).

Sachs (2005) describes poverty in its extreme as a situation where natural, human and physical resources have been exhausted and in this situation what people need is more capital, but that requires saving and in a situation saving is usually very difficult because they need almost all their entire income just to survive. Sachs (2005) describes poverty as man-made, he analyses how the poor policy options embarked upon by successive government in Africa have widened the gap between the poor and the rich and created a serious economic imbalance that has enriched few and impoverish many. But one good thing about poverty is that there is always a solution to it and it can be eradicated. We have seen how this has been achieved in most Asia countries. China, India and Malaysia are setting a good example of how poverty can be tackled. Even some of the African countries are on a good track to

reduced or eradicate poverty. Ghana is proving to be a good example in Africa. Sachs (2005) shows how good governance in collaboration with private donors, World Bank, the UN agencies and other bilateral donors are working towards a common goal to harmonize their effort around a Ghana strategy. There is a good working agreement and understanding among these development partners to channel and pool their financial resources together to support the Ghana Multi-Development Budget Support (MDBS) policy. Under this developmental arrangement, the donors have agreed to give their money directly to the Ghana budget so that the government can carry out the public investment it has identified as the top priorities for poverty reduction.

2.3. Household and Livelihood Food Security

Household Livelihood Security (HLS) evolves out of the food security perspective, and has its foundation on the ground that food is only one important basic need among several competing needs, and adequate food consumption may be sacrificed for other crucial needs especially when the physiological hunger can still be controlled (De Waal, 1989);
"A livelihood comprises people, their capabilities and their means of living, including food, income and assets. Tangible assets are resources and stores, and intangible assets are claims and access. A livelihood is environmentally sustainable when it maintains or enhances the local and global assets in which livelihoods depend, and has net beneficial effects on other livelihoods. A livelihood is socially sustainable which can cope with and recover from stress and shocks, and provide for future generations" (Chambers and Conway 1992:9).

Drinkwater and McEwan (1992) define household livelihood security as adequate and sustainable access to income and resources to meet basic needs including adequate access to food, potable water, health facilities, educational opportunities, housing, time for community participation and social integration. And it consists of a range of on-farm and off-farm activities which together provide a variety of procurement strategies for food and cash. This opens up different ways by which individual members of households can have several means of entitlement which constitute its livelihood.

Sen (1982) argues that these entitlements are based on the household endowment and its position in the legal, political and social fabric of society. In most parts of rural Africa, peasant agricultural production is the basis of the livelihood and food security of the people. Many people derive their food entitlement from their own production and this is the major reason why they are more prone to food insecurity, famines and hunger. Occurrence of drought, flood or crop failure will definitely disrupt their livelihood because of their vulnerability to climatic condition. Swift and Hamilton (2001) describe the devastating effect that can happen when more than one cause occurs together. Since livelihood of most rural Africans depends entirely on their own production and heavily depends on rain-fed agricultural systems of production, any occurrence of drought will definitely disrupt their livelihood. So what can really help to sustain most of the livelihoods of rural Africans is for them to be less dependent on rain fed systems of agricultural production and equipped with the ability to use and adapt simple irrigation techniques and to diversify into both agricultural and non-agricultural enterprises that will be of financial benefit and provide them with other means of gaining entitlement to food and services, thus strengthening their livelihood.

There have been many attempts in the past to focus on the food security issue rather than focusing on the livelihood security as a whole. It was found that food security is but one sub-set of objectives of poor households; food is only one of a whole range of factors which determine why the poor take decisions and spread risk, and how they finely balance competing interests in order to make ends meet in the short and longer term (Maxwell and Smith 1992). People may choose to go hungry to preserve their assets and future livelihoods. De Waal (1991) observed that during the rain of 1985, as hunger persisted and intensified in part of South Darfur in Sudan, as famine migrants returned home from the north to cultivate, when given food even though they were hungry and barely eating once a day or once in two days, people often sold that food to buy something they considered more important, such as fodder for animals or to pay for the cost of their transportation. So it is misleading to treat food security as a fundamental need, independent of wider livelihood considerations. Only when the physiological hunger has becomes unbearable or there are no competing demands for time and money, will people turn completely to the task of filling their stomach. People are constantly being required to balance food procurement against the satisfaction of other basic material and non-material needs (Maxwell and Frankenberger 1992).

2.3.1 Sustainable Livelihood Approach

Sustainable livelihood approach is an attempt to establish a concrete concept that takes a broader look at causes, effects and manifestation of poverty-related issues such as food insecurity, hunger, famine and even social exclusion. It was formulated out of desire to correct the narrow thinking or approaches to some of the conventional ways and approaches to poverty which in most cases only focused on certain aspects of poverty such as low income or low productivity and neglected other vital aspect such as vulnerability and social exclusion. It is now widely obvious that most of the past conventional approaches failed to addresse poverty and other related issues in a very effective ways. It is a generally believed now that more attention should be given to various factors and processes which either constrain or enhance poor people's capacity to make a decent living in an economically, ecologically, and socially sustainable manner. The sustainable livelihood approach (SL) concept proved to be a more coherent and integrated approach to poverty. According to Scoones (1998:5), "A livelihood comprises the capabilities, assets, including both material and social resources, and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks maintain or enhance its capabilities and assets, while not undermining the natural resource base." Swift and Hamilton (2001) describe SL as a useful analytical framework, which seek to improve the depth of our understanding of how people use or manage the resources at their disposal to construct a livelihood. According to Kollmair and Gamper (2002:3-4) the core concepts are.

People-centred: People rather than the resources they use are the priority concern in the livelihoods approach, since problems associated with development are often rooted in ineffective institutional structures impossible to be overcome through simple asset creation. Therefore, sustainable poverty reduction will succeed only if development agents work with people in compatibility with their current livelihood strategies, social environment and capabilities to adapt. At a practical level this implies a detailed analysis of people's livelihoods and their dynamics over time.

Holistic: A holistic view is aspired to in understanding the stakeholders' livelihoods as a whole, with all its facets. This does not plan to be an exact representation of the way the

world is, but rather a controllable model to identify the most pressing constraints faced by people regardless of where (i.e. which sector, geographical space) these occur.

Dynamic: Just as people's livelihoods and the institutions that shape them are highly dynamic, so is the approach in order to learn from changes and help mitigating negative impacts, whilst supporting positive effects.

Building on strengths: A central issue of the approach is the recognition of everyone's inherent potential for his/her removal of constraints and realisation of potentials. This will contribute to the stakeholders robustness and ability to achieve their own objectives.

Macro-micro links: Development activity tends to focus at either the macro or the micro level, whereas the SLA tries to bridge this gap in stressing the links between the two levels. As people are often affected by decisions at the macro policy level and vice-versa, this relation needs to be considered in order to achieve sustainable development.

Sustainability: A livelihood can be classified as sustainable, when it is resilient in the face of external shocks and stresses, when it is not dependent upon external support, when it is able to maintain the long-term productivity of natural resources and when it does not undermine the livelihood options of others

2.3.2. Sustainable Livelihood Framework

According to Kollmair and Gamper (2002) the sustainable livelihood framework SLF (Figure 2.2) forms the core of the Sustainable Livelihoods Approach (SLA) and serves as an instrument for the investigation of poor people’s livelihoods, whilst visualising the main factors of influence. Like all models, the SLF is a simplification and does not represent the full diversity and richness of livelihoods, which can only be understood by qualitative and participatory analysis at the local level.

Figure 2.2: Sustainable Livelihood Framework (SLF)
Source: (Kollmair and Gamper 2002)

In its simplest form, the framework depicts stakeholders as operating in a context of vulnerability within which they have access to certain assets. These gain their meaning and value through the prevailing social, institutional and organisational environment (Transforming Structures and Processes). This context decisively influences the Livelihood Strategies that are open to people in pursuit of their self-defined beneficial Livelihood Outcomes (see Figure 2.2). In other words, the framework provides a checklist of important issues and sketches out the way these link to each other, while it draws special attention to core influences and processes and their multiple interactions in association to livelihoods.
Sustainable Livelihood Framework is made up of the following core ideas or concepts according to Kollmair and Gamper (2002:5-6)

Vulnerability Context

The Vulnerability Context forms the external environment in which people exist and gain importance through direct impacts upon people's asset status (Devereux, 2001b). It comprises Trends (i.e. demographic trends; resource trends; trends in governance), Shocks (i.e. human, livestock or crop health shocks; natural hazards, like floods or earthquakes; economic shocks; conflicts in form of national or international wars) and Seasonality (i.e. seasonality of prices**,** products or employment opportunities) and represents the part of the framework that lies

furthest outside stakeholders control. Not all trends and seasonality must be considered as negative; they can move in favourable directions, too. Trends in new technologies or seasonality of prices could be used as opportunities to secure livelihoods.

Livelihood Assets

The livelihoods approach is concerned first and foremost with people. So an accurate and realistic understanding of people's strengths (here called "assets" or "capital") is crucial to analyse how they endeavour to convert their assets into positive livelihood outcomes (Bebbington 1999). People require a range of assets to achieve their self-defined goals, whereas no single capital endowment is sufficient to yield the desired outcomes on its own. Since the importance of the single categories varies in association to the local context. Assets are of special interest for empirical research in order to ascertain if those, who were able to escape from poverty, started off with a particular combination of capital, and if such a combination would be transferable to other livelihood settings. Furthermore, it would be interesting to evaluate the potential for substitution between different capitals, for instance a replacement of a lack of financial capital, as is often the case in the reality of poor stakeholders through a better endowment with social capita.

Human Capital

In the field of development studies, "human capital" is a very widely used term with various meanings. However, in the context of the SLF it is defined as follows: "Human capital represents the skills, knowledge, ability to labour and good health that together enable people to pursue different livelihood strategies and achieve their livelihood objectives" (DFID 2000). At the household level it varies according to household size, skill levels, leadership potential, health status, etc. and appears to be a decisive factor, besides being intrinsically valuable in order to make use of any other type of assets. Therefore, changes in human capital have to be seen not only as isolated effects, but as well as a supportive factor for the other assets. Since an exact measurement of the diverse indicators of human capital causes difficulties at the local level (i.e. how to assess indigenous knowledge appropriately?), it may sometimes be more suitable to investigate variations and their reasons

Social Capital

There is much debate about what exactly is meant by the term "social capital" and the aspects it comprises. In the context of the SLA it is taken to mean the social resources upon which people draw in seeking for their livelihood outcomes, such as networks and connectedness,

that increase people's trust and ability to cooperate or membership in more formalised groups and their systems of rules, norms and sanctions.

Quite often access and amount of social capital is determined through birth, age, gender or caste and may even differ within a household. Obviously and often parallel to positive impacts social capital also may cause effects that are restrictive for development. For instance the membership of groups always entails excluding other stakeholders; or the social affiliation to a certain caste may be positive or negative depending on the person's hierarchical position within the system. Still, it is important through its direct impact on other capitals, by improving the efficiency of economic relations or by reducing the 'free rider' problems associated to public goods through the mutual trust and obligations it poses onto the community. And for the most deprived, social capital often represent a place of refuge in mitigating the effect of shocks or lacks in other capital through informal networks.

Natural Capital

Natural capital is the term used for the natural resource stocks from which resource flows and services (such as land, water, forests, air quality, erosion protection, biodiversity degree and rate of change, etc.) useful for livelihoods are derived. It is of special importance for those who derive all or part of their livelihoods from natural resource-based activities, as it is often the case for the poor stakeholders, but also in more general terms, since a good air and water quality represents a basis for good health and other aspects of a livelihood. Within the framework a particularly close relationship exists between natural capital and the vulnerability context and many of the devastating shocks for the livelihoods are natural processes that destroy natural capital (e.g. fires, floods, earthquakes).

Physical Capital

Physical capital comprises the basic infrastructure and producer goods needed to support livelihoods, such as affordable transport, secure shelter and buildings, adequate water supply and sanitation, clean, affordable energy and access to information. Its influence on the sustainability of a livelihood system is best fit for representation through the notion of opportunity costs or ‘trade-offs’, as a poor infrastructure can preclude education, access to health services and income generation. For example, without irrigation facilities long periods are spent in non-productive activities, such as the collection of water, needing extra labour

force that could be of use somewhere, or would be a time resource to go to school. Since infrastructure can be very expensive, not only its physical presence is important, but as well the pricing and secure disposition for the poorest groups of society must be considered.

Financial Capital

Financial capital denotes the financial resources that people use to achieve their livelihood objectives and it comprises the important availability of cash or equivalent that enables people to adopt different livelihood strategies. Two main sources of financial capital can be identified:

Available stocks comprising cash, bank deposits or liquid assets such as livestock and jewellery, not having liabilities attached and usually independent of third parties.

Regular inflows of money comprising labour income, pensions, or other transfers from the state, and remittances, which are mostly dependent on others and need to be reliable.

Among the five categories of assets, financial capital is probably the most versatile as it can be converted into other types of capital or it can be used for direct achievement of livelihood outcomes (e.g. purchasing of food to reduce food insecurity). However, it tends to be the asset least available for the poor, making other capitals important as substitutes.

2.4. Entitlement Approach

Entitlement approach to food security was made popular and developed by Amartya Sen. Most attention on food security problems before then were based on supply factors of the production side of food, but towards the late 1970s it was clear that food production on its own did not assure or guarantee consumption, and that people needed access to food (Maxwell 2001:24). It was not until early 1980s to mid 1980s that the entitlement idea gained attention and this author had a great influence in moving and shifting thinking about food security (Maxwell 2001). The entitlement approach challenged the conventional thinking and wisdom of the early 1970s, which strongly emphasized that hunger and malnutrition were primarily caused by an insufficient production and food supply (Sijm 1997:89). The approach, according to Sijm, (1997) stressed the importance of the incidence of poverty in

explaining why certain people or groups of people were undernourished or even starving. Rangasami (1985) noted the previous attempt made by other authors to established the link between hunger and poverty, but it was Sen who launched the first attempt to formalize this idea and set up a general theoretical and empirical framework (Sijm 1997).

The entitlement approach was built on the fact that famine and other related food security problems are not necessarily or mainly caused by lack or sudden decline of food supply, but that certain people or groups of people suffer from hunger, under-nutrition or in some situations starvation due to lack of entitlements or access to food. Sen (1982) argued that starvation is not the characteristic of there not being enough food to eat but characteristic of some people not having enough food to eat. According to Sen (1982), the entitlement of a person can be regarded as the set of all the alternatives bundles of commodities that a person can obtain legally by using his or her endowments. These endowments can include both tangible assets such as land, livestock, stocks of produce or farming equipment as well as intangible ones such as labour power, skill, knowledge or rights and duties due to being a member of a particular community, for example welfare state like the United Kingdom. Some people only gain their entitlement through the benefit they received from government, while this can be considered as an entitlement by a United Kingdom permanent resident, a visitor or certain category of resident, i.e. some foreign students and certain categories of migrant workers cannot claim this benefit because it is outside their legal right. Sijm (1997) argues that in a market economy with private ownership, food entitlement can be obtained not only by means of production, trade and own labour, but also by means of socially sanctioned transfer either within a social group as commonly practised in some part of Nigeria or through the public sector like that of United Kingdom.

The entitlement approach in its characteristics established an opposing idea to what Sen called Food Availability Decline (FAD). It categorise all the previous ideas about food problems which argue that famines are caused by decline or failures of aggregate food supply or production at either the local, regional or national level (Sijm 1997). The entitlement approach argues that famines should be look into and analysed in terms of decline or failures of food entitlement of different categories of socio-economic group. Osmani (1995) and Sijm (1997) argue the superiority of entitlement approach over the FAD in two ways as follows:
Plurality of causes and asymmetry of impact. Plurality of causes argues that a decline or sudden fall of food supply is not a necessary condition for a famine, there has been some

situations where people suffer from problems of food insecurity without actual decline in food availability or supply, the argument here is that other causes might be responsible for famine or even starvation, causes like loss of employment, wages cut, or an unfavourable changes in terms of trade of food in exchange for assets. Asymmetry of impact argues that irrespective of roles played by food supply in famines, the FAD approach does not establish why and how certain specific groups of people suffer more from hunger and starvation than others. Therefore the view based on FAD ideas fail to differentiate between the effect of a food crisis on specific group of people while the entitlement approach is able to explain these asymmetries of impact by showing how and why the entitlement sets of different groups of people change due to any change in events whether this changes affect food availability or not.

Devereux (2001a) summarised the tenets of entitlement as the full range of goods and services that a person can acquire by converting his or her endowments, assets and resources, which include labour power, skill and knowledge through entitlements mapping in the context of poverty and famine, and it aims comprehensively to describe all legal sources of food, which Sen (1981:2) simplifies to four categories: production based entitlement i.e. growing food, trade based entitlement i.e. buying food, own labour entitlement i.e. working for food and finally inheritance and transfer entitlement i.e. being given food by others. A person faces starvation if their full entitlement set does not provide them with adequate food for subsistence and this can scale up to famines when a groups of people simultaneously experience serious decline in their entitlements.

2.4.1 Critiques of the Entitlement Approach

The entitlement approach has attracted much attention and has been subjected to critical scrutiny by all and sundry in the academic fields, ranging from favourable assessment by Osmani (1995), to a mild favourable analysis by De Waal (1990), critique by Nolan (1993) and even refutation by Bowbrick (1986) and utter dismissal by Rangasami (1985) and Fine (1997). Devereux (2001a) has done a very good job by converging all these views and provides an objective view to this entitlement approach. Out of all the criticism, the one that

really captures the attention of the writer and that is mostly considered as a fair assessment is the inclination of the entitlement idea towards underestimating supply factors of production. Most authors find Sen's claims in some of the case studies used in his work, that there is no significant decline of food availability, unacceptable. Rangasami (1985) observed that in other case studies using the entitlement approach, he found out that famines have been preceded by a failure of food availability. Any shortfall on food supply should not be taken lightly as this can have a ripple effect and threaten people's livelihood, e.g. fall in supply can induce higher prices of food stuff. Also as noted by Sijm (1997) supply factors such as poor infrastructure, high cost of transportation and other transaction cost can act as a barrier for smooth delivery of food to famine prone areas (De Waal 1990, Nolan, 1993). Some also argue the potential implication of a partial diagnosis of famines and other food related problems for policy makers; they could neglect the supply side of food and focus on the demand side by formulating inappropriate policy. As observed by Sijm (1997) the critical remarks on the entitlement approach to underestimate the importance of supply factors is a fair assessment, for example in most African countries food deprivation has been mostly cause by poor agricultural output and low per capita food supply.

2.5. Coping Strategies

Coping with hunger and other related food insecurity problems in most African countries has grown to become a way of life especially of the rural dwellers. More than 300 million Africans go to sleep hungry every night (FAO 2002). One of the best strategies employed by most rural African dwellers and supported by some literature on coping strategy is livelihood diversification. This is supported by Ellis and Edward (2004) and argues that livelihood diversification is a good strategy for reduction of poverty which leads to stress in farming and is perceived by many farming households as a long term coping strategy. In its simplest form livelihood diversification means the ability of a person or household to create a multiple or rely on different multiple economic activities within a year.

Also food rationing is another way by which most rural Africans cope with hunger. Food rationing is a universal and immediate response by which people deal with food shortage (Devereux 2001b). Rationing food intake protects livelihood and the viability of the

household in the long run. De Waal (1991) argues that what concerns rural peoples most in times of adverse food situation is to preserve their livelihood and avoid destitution and social break down, so people are ready to suffer hunger in the process. For examples De Waal (1989) noted that the people of Darfur in Sudan during the famine period chose to go hungry in order to preserve their assets and therefore their future livelihood. They were quite ready to put up with considerable levels of hunger, in order to conserve seeds for planting, or to prevent having to sell animals. Corbett (1988) claims that preservation of assets takes priority over meeting immediate food needs until the point of destitution, when all options have been exhausted. Oshaug (1985) identified three kinds of households, enduring households, which maintain household food security on a continuous basis; resilient households, which suffer shocks but recover quickly, and fragile households which become increasingly insecure because of their vulnerability to external shock. Maxwell (2001) argues that the dilemma facing small farm households involves a trade-off between immediate subsistence and long-term sustainability. And migrating from rural area to the city in adverse period to seek for wage employment is also a way of coping with hunger.

Diversification is a process by which economies become more diverse. At household level this tends to mean adding new activities. Households have diversified portfolios because of several reasons. It helps to lessen the vulnerability of the poor to food insecurity and livelihood failure; it can provide the basis for building assets that permit individuals and households to construct their own escape routes out of poverty and stress. It can also improve the quality and sustainability of natural resources that constitute key assets in rural livelihoods (Ellis 1999). These effects occur because diversification widens people's options, encourages spatially diverse transactions, increases cash in circulation in rural areas, and enhances human capital by providing those who diversify with new skills and experiences and consequently reduction of stress (Ellis 1999). The amount of stress is directly related to the adequacy of individuals' coping resources. When coping resources are low, stress is high. If coping is adequate, the experience of stress is reduced.

Briggs, Tenywa, and Nakileza (1998) observed that the majority of farmers have insufficient knowledge of improved farming methods, a situation reflecting the gaps and weakness of the agricultural extension systems. Consequently there is deterioration in land productivity and knowledge of improved farming practices, and perpetuation of the cycle of environmental degradation, deprivation and poverty (World Bank 1995). The once resilient production then

becomes eroded as a result of combination of steady population increase, absence of off-farm employment and lack of technology development in small farming systems. Thus soil fertility is diminishing and crop yields stagnating. Without access to or ability to purchase inputs to slow down these processes, farmers are forced to cultivate land for longer periods with continuous decreasing returns resulting in land degradation and nutrient depletion (Briggs, Tenywa, and Nakileza 1998).

Taking diversification to mean the adaptation or transformation of the (household or rural) economy into new, mainly non-agricultural sectors, the literature offers two contrasting perspectives. On one hand, theories of growth and structural transformation suggest that a diversifying economy is a growing economy that will create new jobs and avert downward pressure on rural wages. In this context livelihood diversification is progressive and a positive strategy of adaptation which can lead to accumulation by rural producers. On the other hand livelihood diversification is viewed as a residual sector that offers no more than a 'bargain basement' for distress or coping activities, mopping up the fall out of a failing smallholder agricultural sector (Scoones 1998). Carney (1999) argues that rural people are not only isolated from economic opportunities but they also tend to have less access to social services such as health, sanitation and education. For example, it is estimated that around 1 billion rural households in developing countries lack access to safe water supplies.

2.6. Agriculture and Food Security

Agricultural production and activities is the basis of food security, especially in Africa. This is obvious from the fact that a larger percentage of the population derives their livelihood from agricultural activities and it is the largest employer of labour. More than sixty five percent in Africa live on agricultural activities (Maxwell 2001). Agriculture also accounts for a greater share of Gross Domestic Product (GDP). More than sixty five percent of people live in the rural area, home to the world poorest. For any tangible development to occur in Africa its agricultural sector must be overhauled and development must be woven around agriculture.

Agriculture also accounts for a greater share of Gross Domestic Product (GDP). For the past 40 years, there has been remarkable growth in agricultural production with per capita world food production growing by 17 percent and aggregate world food production growing by 145 percent. Between the early 1960s and mid-1990s, average cereal yields grew from 1.2 tons per hectare (t/ha) to 2.52 t/ha in developing countries while total cereal production grew from 420 to 1,176 million tonnes per year (Smil 2000, Pretty and Hine 2001). Over the same period of time, world population grew from three to six billion, but globally per capita agricultural production surpassed population growth, and each person today has 25 per cent more food compared with 1960. However this is not the case for everyone, it varies regionally; in Africa, for example, food production per person is 10 percent lower today than in 1960 (FAO 2006). New methods of agricultural have brought spectacular increases in productivity: more cereals and animals per hectare, more meat and milk per animal, and more food output per person employed. Any farmer or agricultural system with access to sufficient inputs, knowledge and skills can produce large amounts of food. However, the majority of the chronically hungry are small farmers in Africa and other developing countries that produce much of what they eat and are often poor and do not have access to inputs and product markets.

Maxwell (2001:34) identifies six different contributions that agriculture can make to food security as follows; food, livelihood, market, raw materials, foreign exchange and surplus. Despite the poor state of agricultural development in Africa, the sector still contributes the largest share of the food that African eats. Most African countries are self reliant in root and starchy stapes. Nigeria for example is ranked the world's largest producer of cassava (FAO 2004) and it also produces large amounts of yam, plantain and banana. These are also in abundant production in most part of the African countries, and contribution of these staples to food needs cannot be underestimated. However Maxwell (2001:36) noted that import dependency is higher in the cereal sector than for root and other starchy staples, but even the dependency ratio i.e. import to total consumption is less than 15 percent. A rather old estimate of 1995 put cereal imports into Africa at 12 million tonnes and production was close to 80 million tonnes. Maxwell (2001:37) also observed higher dependency and degree of self sufficiency achieved is at relatively low levels of consumption. Despite these the contribution of the African farmers towards the food need of their people should not be underestimated.

Agriculture is also a major source of livelihood; it generates employment for over two-thirds of the labour force in Sub-Saharan Africa (SSA) (Maxwell 2001). Employment in the agricultural sector provides and sustains people's livelihoods and is capable of generating more employment opportunities. It can provide livelihood in the physical production process, and also in the supply of inputs and raw materials and marketing of outputs. Agriculture also contributes in a number of different ways to employment and growth in other sectors of the economy; it provides raw materials for industry, for example beverages and textiles, and it generates foreign exchange which can be used in exchange for capital goods and machinery for the agriculture sector. For all these reasons agriculture contributes far more than any sector to African development and is capable and has enormous potential to jump start African development, enhance food security and economic progress, and reduce or totally eliminate poverty.

2.6.1 Sustainable Agriculture and Food Security

Food security is not only about making ready available food for the consumption of the populace, but how to make sure there is constant and continuous availability of food not just for today, but tomorrow and without jeopardising the future ability to produce as well. This is what sustainability preaches. The Food and Agricultural Organisation (FAO) of United Nation has tried to offer a more specific description of sustainable agricultural development as a development path where resources use and environmental management are combined with increased and sustained production, secure livelihoods, food security, equity, profitability, social stability and people's participation in the development process. Nijkamp and Vidigini (2002) observed that if the above conditions are met, sustainable agricultural development is environmentally non-degrading, technically appropriate, economically viable and socially acceptable, so that a maximum welfare can be achieved through a co-evolutionary strategy focussed on economic, environmental and social objectives and /or constraints on agricultural production now and in the future. Most definitions subscribe to the idea that sustainability must combine economic with environmental concerns, recognising that the continued neglect of the physical and biological resources is affecting the long term health of the agricultural system (Ilbery, Chiotti, and Rickard 1997). Ilbery, Chiotti, and Rickard (1997:4) identified three basic propositions for agricultural sustainability as

- Rates of use of renewable resources should not exceed their rates of regeneration

- Rates of use of non- renewable resources should not exceed the rate at which sustainable substitutes are developed.

- Rates of pollution emission should not exceed the assimilative capacity of the environment

Also Brkacich *et al.* (1990:300) offer to establish sustainable agriculture on the following basis

- Environmental sustainability: as the capacity of an agricultural system to be reproduced into the future without unacceptable pollution, depletion or physical destruction of its natural resources such as soil, water, air and natural resources and semi-natural habitats

- Socioeconomic sustainability: as the capacity of an agricultural system to provide an acceptable economic return to those employed in the productive system

- Productive sustainability: as the capacity of an agricultural system to supply sufficient food to support the non-farm population.

Despite all these propositions and criteria provided, they are just a useful framework from which to define sustainable agriculture, they do not offer a specific guidance on how to achieve sustainability. Therefore sustainability encompasses more than one set of ideas or proposition; it deals with a whole range of issues which includes biodynamic, community-based, eco-agriculture, ecological, environmentally sensitive, extensive, farm-fresh, free-range, low-input, organic, permaculture, sustainable and wise use (Cox, Picone, and Jackson

2004). There is a continuing and intense debate in academics circles about whether agricultural systems using some of these practices can qualify as sustainable.

Mason (2003:3) described sustainable agriculture as a philosophy, a system of farming that empowers the farmer to work with natural process to conserve resources such as soil and water whilst minimising waste and environmental impact and a system that encourages agro ecosystem to becomes more resilient, self regulating and the one that promotes profitability.

Generally an effective sustainable agricultural system can be taken to mean one that aims to make the best use of environmental goods and services while not damaging the basic assets namely natural, social and human capital (Gliessman 2005). According to the UN (2008) the key principles for sustainability are to:

- Integrate biological and ecological processes such as nutrient cycling, nitrogen fixation, soil regeneration, allelopathy, competition, predation and parasitism into food production processes;

- Minimize the use of those non-renewable inputs that cause environmental damage or that harm the health of farmers and consumers;

- Make good use of the knowledge and skills of farmers, so improving their self-reliance and substituting human capital for costly external inputs;

- Make productive use of people's collective capacities to work together to solve common agricultural and natural resource problems, such as pests, watershed, and irrigation, forest and credit management.

The conventional wisdom is that, in order to increase food supply, efforts and activities need to be increased to modernize agriculture, as this approach has been successful in the past. But there are doubts about the capacity of such systems to reduce food poverty. Sen (1981) has proved this in his entitlement approach. The great technological progress in the past half-century has not resulted in major reductions in hunger and poverty in developing countries especially in Sub-Saharan Africa. Therefore, the most sustainable choice for agricultural

development and food security is to increase total farm productivity in situations where there is evident of low productivity, and in the developing countries that are the most likely to need the food. The central questions therefore according to the UN (2008) must focus on the following:

- The extent to which farmers can improve food production and raise incomes with low-cost, locally available technologies and inputs (this is particularly important at times of very high fuel and agro-chemical prices);
- Whether they can do this without causing further environmental damage; and
- The extent to which farmers have the ability to trade.

Sustainability in agricultural systems incorporates concepts of both resilience (the capacity of systems to resist shocks and stresses) and persistence (the capacity of systems to continue over long periods), and addresses many wider economic, social and environmental outcomes. Agricultural systems with high levels of social and human assets are more able to adapt to change and innovate in the face of uncertainty. This suggests that there are likely to be many pathways towards agricultural sustainability; no single system of technologies, inputs or ecological management is more likely to be widely applicable than another. Agricultural sustainability then implies the need to fit these factors to the specific circumstances of different local agricultural systems and situation (UN 2008).

2.6.2 Organic Agriculture and Food Security

Just like sustainable agriculture, many attempts have been made to define organic agriculture in concise and specific ways, the general impression that comes to mind when people talk of organic agriculture is farming without application of chemical fertilizer and weed killers as observed by Lampkin and Padel (1994). But this definition, as concise as it may be, does not fully encompass all attributes of organic agriculture; it only tells us what farmers do not do in organic farming and failed to explain what they do. To get a good grasp of the idea behind

organic farming, it must be viewed from a holistic perspective in terms of relationship and interaction between all the various components of the environment (air, soil, water, animals, sunlight and the farmers) and within the broader context of society. Lampkin and Padel (1994) described organic farming as an approach that aims to create an integrated, humane and economically sustainable agricultural production system, it maximizes reliance on farm derived renewable resources and the management of ecological and biological processes

Organic agriculture is made up of so many varied features as to what is and what is not organic (Mason 2003) In the past organic agriculture has been described as sustainable agriculture, but the distinction here is that all organic agriculture can be described as sustainable but not all sustainable practices are organic. See Figure 2.2 for the relationship between all types of agriculture as practised in most developing countries. The most important and vital element of an organic system is sustainability, which is used in a broader sense to encompass not just conservation of non-renewable resources, but also the issues of environment, social and economic sustainability. The US National Organic Standards Board define organic agriculture as

“An ecological production management system that promotes and enhances biodiversity, biological cycles and soil biological activity. It is based on minimal use of off-farm inputs and on management practices that restore, maintain and enhance ecological harmony” (NOSB 2001:5). Also the US Department of Agriculture defined organic agriculture as

“A production system that avoids or largely exclude the use of synthetically compounded fertilizers, pesticides, growth regulator and stock feed additives. To the maximum extent feasible, organic farming relies on crop rotation, crop residues, animal manures, legumes, green manures, off-farm organic waste and aspects of biological pest control to maintain soil productivity; to support plant nutrients and control insects, weeds and other pests”. (USDA 1980:94). But one of the most acceptable and encompassing definition of organic agriculture was given by FAO/WHO Codex Alimentarius Commission because it captures the whole essence of the organic system it is defined as;

“A holistic production management system, which promotes and enhances agro-ecological system health, including biodiversity, biological cycles and soil biological activity. It

emphasizes the use of management practices in preference to the use of off-farm inputs. This is accomplished by using where possible, agronomic, biological and mechanical methods as opposed to using synthetic materials to fulfil any specific functions within system." (FAO/WHO 1999:3).

The principle aims of organic production and processing as listed by the International Federation of Organic Agriculture Movement, (IFOAM), an international grassroots and democratic organisation that propagates and advocates the promotion of organic agriculture globally are:

• To produce sufficient quantities of high quality food, fibre and other products.

• To work compatibly with natural cycles and living systems through the soil, plants and animals in the entire production system

• To recognize the wider social and ecological impact of and within the organic production and processing system.

• To maintain and increase long-term fertility and biological activity of soils using locally adapted cultural, biological and mechanical methods as opposed to reliance on inputs.

• To maintain and encourage agricultural and natural biodiversity on the farm and surrounds through the use of sustainable production systems and the protection of plant and wildlife habitats.

• To maintain and conserve genetic diversity through attention to on-farm management of genetic resources.

• To promote the responsible use and conservation of water and all life therein.

• To use, as far as possible, renewable resources in production and processing systems and avoid pollution and waste.

• To foster local and regional production and distribution.

• To create a harmonious balance between crop production and animal husbandry.

• To provide living conditions that allows animals to express the basic aspects of their innate behaviour.

• To utilize biodegradable, recyclable and recycled packaging materials.

• To provide everyone involved in organic farming and processing with a quality of life that satisfies their basic needs, within a safe, secure and healthy working environment.

• To support the establishment of an entire production, processing and distribution chain which is both socially just and ecologically responsible.

• To recognize the importance of, and protect and learn from, indigenous knowledge and traditional farming systems.

This list does not seek to establish any order of importance; they are all vital principles of the organic agricultural system (IFOAM 2002).

Agriculture by virtue of its importance towards African development and its inherent multi-functionality has the capacity and potential to both strengthen and address those main factors that directly or indirectly contribute to food security needs. According to Pretty (2003) organic agriculture depends heavily on five capital assets for success (natural, social, human, physical and financial) and therefore contributes to and builds up stocks of these natural, social and economic resources and with these minimizing many of the factors that mitigate against food security needs of the people. The UN (2008) found out from various studies conducted and evidence from research that organic agriculture is contributing and capable of achieving more in the following area;

- Increase in food availability

- Benefit to natural environment
- Benefit to community cooperation and partnerships
- Increase in education, skills and health
- Improvements to infrastructure and markets
- Increase in farmers and household incomes

Contrary to conventional belief or thinking, evidence from the current research study in Africa and other developing countries has shown that agricultural yields in organic systems do not fall or decline, and at least remain stable when converting from systems that use relatively low amounts of synthetic inputs. Over time, yields increase with increase in capital assets in the system and outperform those in traditional systems and match those in more convectional, input-intensive systems (UN 2008). Gibbon and Bolwig (2007) also reported an increase in yield in organic converted systems in tropical Africa rather than the general belief of yield reduction or decline. Also organic farming increased both the quantity and quality of the food produced per farm and this leads to increase in household food security by increasing the access of members of household to more food. Again the production and selling of organic food at market gives farmers benefit of higher income since organic produce command premium price.

The report from the case study on organic systems by the UN (2008) shows that up to 93 percent of cases shows beneficial effects on soil fertility, water supply, flood control and biodiversity. Organic farming improves the natural environment by improving water retention and infiltration capability of the soil, improvements in water table, reduction of soil erosion and improved in organic matter in the soil, leading to better carbon sequestration and increased in agro-biodiversity. All these beneficial effects combined together will create a healthier and more rewarding environment for farmers to propagate their plant and gives them the opportunity to grow high yielding organic products on marginal land, thus improving food security and household livelihood.

Organic agriculture enhances social capital, and helps to create a more stable social organisation at local level. It creates sense of community responsibility and improves social connectivity; it improves community organisation and creates a better link to external policy institutions. Evidence from the case study by the UN (2008) shows that 93 percent of those involved cited improvement to social capital as a pathway to their success. The formation of farmers' groups and cooperatives has lowered formal community establishment and reduced the cost of logistics and working. This has also led to increase in the knowledge and skill transfer. The kind of synergy created within the community has reduced the cost of organic certification that is initially beyond the reach of ordinary farmers and improved food security among the household and within the community. Some of the following organisations have been found to be viable and farmers have found them as good links and instruments towards the propagation of the organic farming system in some Africa countries. Such organisations include the Kenya Organic Agriculture Network (KOAN), the National Organic Agricultural Movement of Uganda (NOGAMU), the Tanzania Organic Agriculture Movement (TOAM), and the Export Promotion of Organic Products from Africa (EPOPA). These entire organisations have a specific programme target of helping farmers to organize for organic certification, gain access to export and domestic organic markets and acquire greater knowledge of sustainable organic techniques, crops and markets (UN 2008).

Knowledge and skill acquisition has been a vital part of organic farming systems, it is a kind of practice that requires some form of education and farmers are required to gain an updated knowledge and understanding. This has really helped farmers in many ways. There has been a direct improvement in the heath of individual farmers and communities as a result of improved skill and knowledge, an increase in food output and improved access to food. The ability of farmers to use their better understanding of the holistic nature of organic farming to adapt and strategise their farming systems when faced with new challenges has resulted in these agricultural systems becoming more resilient to environmental and external stresses (UN 2008).

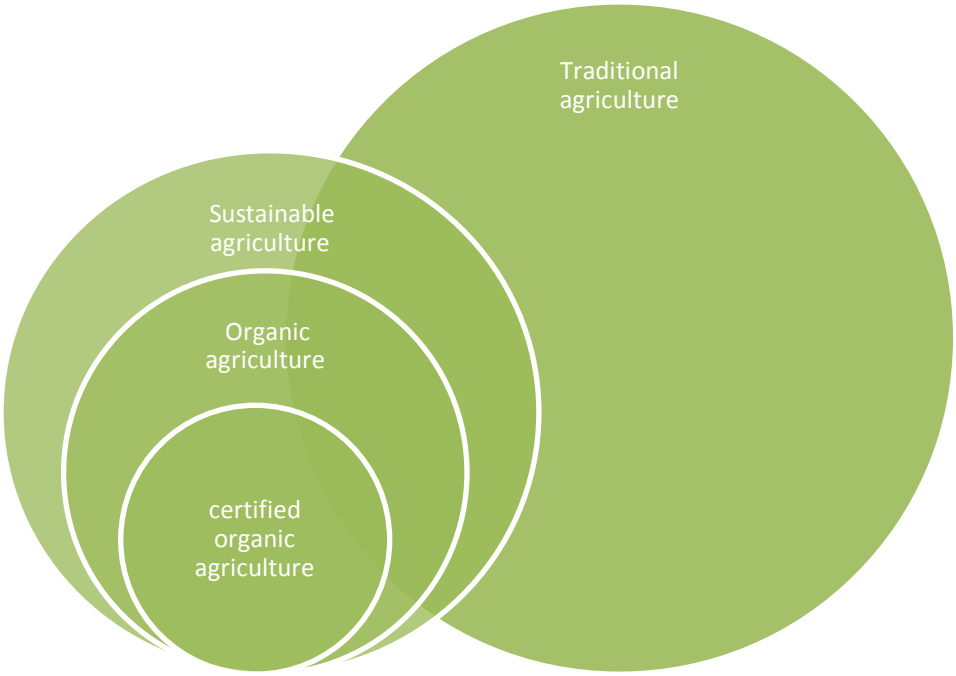

Figure 2.2. Categories of agricultural practices in developing countries

Source: Adapted from (UN 2008)

Chapter Three

3.1. Challenges Facing Food Security in Africa

Poverty has been the root cause of food security problems in Africa, because it prevents people from gaining access to food and other basic necessities of life. While most of the Asian and Latin American countries have made tremendous progress towards poverty reduction and complete eradication, Sub-Saharan Africa continues to lag behind. Food security has been the main challenge. According to Sijm (1997:3) the performance of Africa's food sector has been a declining trend in per capital production, and this has triggered a continuous and growing dependency on food aid and commercial import costing them their hard earned foreign currencies, which could have been better used for valuable capital developmental projects. Mwaniki (2006) noted an increase in projection of Africa food security problems unless drastic measures are embarked upon to checkmate this trend. Many factors have contributed to this tendency, including high prevalence of diseases and infection, especially HIV/AIDS; civil war, strive, and poor or ineffective government. Sijm (1997) observed the worsening food security problem since 1970; the estimated number of undernourished people has remained within the range of 33 to 35 percent and even as high as 40 percent in Central Africa (Mwaniki 2006).

The African situation has been a very peculiar case because more than seventy percent of the food insecure population lives in the rural areas and they depend on the subsistence system of agriculture and this subsistence system of farming is what produces over 90 percent of the Africa's food supply. Fifty percent of this population are food insecure and another 30 percent are landless food insecure and 20 percent are made up of the urban food insecure poor (Mwaniki 2006). Figure 3.1 shows the distribution of food insecure people in Africa.

In Africa agriculture contributes 30 percent to the GDP and almost 70 percent of the population depends on agricultural activities for their livelihood. For Africa to make headway in any poverty reduction programme, considerable attention must be given to agriculture and the rural area, home to the largest proportion of the food insecure people. The number of poor people in Africa rose from 217 million in 1987 to 291 million in1998 (World Bank 2000).

According to Devereux and Maxwell (2001:2) food security is not merely a subset of poverty. Poor people in Africa spend most of their income on food, or use most their time and energy on producing food for subsistence. Now it is evident that food insecurity cannot be reduced without transforming and giving more attention to rural development.

Figure 3.1: Proportion of the food insecure in Africa
Source: (Mwaniki 2006)

Many of the factors affecting food security in Africa were highlighted by Mwaniki (2006) and includes the following

- An underdeveloped agricultural sector
- Barriers to market
- Effect of globalisation
- Diseases and infection

- Handicapping policies

3.1.1. An Underdeveloped Agricultural Sector

The major hindrance to food security in Africa is its underdeveloped agricultural sector that is characterised by too much reliance on primary agriculture, poor soil fertility, significantly low use of external farm inputs, environmental deprivation and degradation, pre and post harvest crop produce loss, complete absence or low value added to produce and lack of product differentiation, and very poor storage facilities (Mwaniki 2006). More than ninety percent of agriculture systems in Africa are rain-fed, thus exposing them to vulnerable weather and climatic vagaries, only 12.2 million hectares of farm land are under irrigation, 7.5 percent of the arable land, compared to Egypt with 99 percent and is as low as 0.2 percent in Congo (FAO 1996:18).

There is continuous downward decline in farm input investment, this is attributed to the risky nature of agricultural practices in Africa, bank and credit owners are unwilling to invest in agricultural business because of the assumed poor returns on investment. Farmers have a very limited or no access to market, and poverty is a stumbling block that prevents farmers from purchasing necessary farm inputs like fertilizer, high yielding seed and seedlings. The continuous cultivation of a single piece of land without proper soil management and conservation effort has led to soil depletion and poor soil fertility which eventually reduces farm yield. Other causes include rapid population growth which creates pressure on the land tenure system, limited access to extension and other technical agriculture assistance, and exposure to farm pests and diseases

3.1.2 Barriers to Market

Access to markets is the second hurdle that smallholder farmers in Africa have to overcome. The problem is multifaceted and includes the following according to Mwaniki (2006); poor infrastructure and barriers in accessing the market occasioned by their limited resource base, poor or lack of valuable information, lack of or inadequate institutional support and unfavourable government policies. Infrastructural collapse prevents farmers from accessing a profitable market for their produce and again most farmers in Africa lack access to certification processes which are capable of opening them up to international market. For example with organic agriculture, some of the farmers produce most of their crops organically but because they cannot get certified due to the cost and lack of coordination among the farmers they cannot gain access to the premium organic market, thus selling their produce at an unprofitable price at their local market. Other barriers are high market standard just like the certification, limited information, and huge set up capital for investment which is out of reach of the farmers.

3.1.3 Disease and Infection

Disease and infection continue to plague the African continent. The devastating effect of diseases such as malaria, tuberculosis and the deadly HIV/AIDS not only reduce the man-hours available to agriculture and household food acquisition, but also increase the burden of households in acquiring food and further deprive them of access to basic necessities of life. In Sub-Saharan Africa, Sachs (2005) observed a gloomy effect of AIDS and malaria on African development. The fact that most Africans live in the rural areas and home to the poorest in the world and their primary occupation is agriculture puts them in a more difficult situation because own labour is one of the major assets of rural dwellers. Disease reduces the capacity of people to work and the ability of HIV/AIDS to be transferred from a mother to a child makes the situation more serious especially when the children become orphaned. It limits or disrupts the normal transfer of practical farming skills and knowledge from one

generation to the next which reduces labour quality and causes a decline in productivity. HIV/AIDS poses both direct and indirect threats to smallholder agricultural systems in Africa which are the main engine of economic development. According to the UN (2005:25) the main impacts of HIV/AIDS morbidity and mortality on agriculture include reduction in crop diversity and the cropped area, and abandoning of labour intensive activities and livestock selling. Also time spent on mourning and funerals of dead relatives is a significant labour time lost. Engh, Stoukal, and Du Guerny (2000) claim that pastoralists in Nambia spend up to 25 percent of their time in mourning and attending funerals. According to Mwaniki (2006) AIDS is the leading cause of adult mortality and morbidity. The Food and Agricultural Organisation of the United Nations (FAO) gave a shocking estimate of AIDS claiming more than 20 percent by 2020 of the working population in the agricultural sector in many of the Southern Africa countries which have the highest number of infected people. The picture is even grimmer because HIV-affected household require more attention and need more nutrients to supplement their diet and without external help there is no way they can cope, thus worsening the already food insecure situation.

3.1.4 Effect of Globalisation

Globalization is characterized by increasing economic integration, particularly trade and capital flows between countries. The associated liberalization of trade has enlarged and transformed the input and commodity markets faced by agricultural producers, markedly changing their terms of trade and underlining the importance of international competitiveness. Concern over the effects of globalization on smallholder farmers in Africa was expressed by participants in the two World Bank regional consultations held in Africa during the updating of the Rural Development Strategy in 2001. The impacts of globalization on African farmers according to Dixon, Taniguchi, and Wattenbach (2004) depend on the degree to which international prices are transmitted through market institutions to the farm gate, smallholder responsiveness to these price signals, and second round effects arising from inter-sectoral linkages. Thus, the agricultural support services and market institutions play a critical role. These are a product of the Structural Adjustment Programs and policies (SAPs) that were introduced in many African countries starting in the 1980s to remove distortions in

product and factor markets through medium to long term measures including trade and market liberalization, stabilization and institutional reforms. In practice the outcome of SAPs has been mixed, including their direct impacts on smallholders as well as their influence on rural institutions. Despite the importance of agricultural productivity growth, there is little evidence that market liberalization in Africa has promoted widespread intensification of the major crops which account for the bulk of the area cultivated (Jayne *et al.* 1996). There is some evidence that marketing reforms have increased incentives for the production of cash crops and selected food crops in specific situations. At the same time, in some countries food marketing reforms reduced marketing costs (Jayne *et al.* 1996, Kherallah *et al*. 2000). In this connection, Jayne *et al.* (1994) has shown that the ability to ensure reliable and low cost food for rural households as purchasers of food has been an important determinant of their ability to diversify into higher-valued non-food crops

3.1.5. Poor Government Policy and Ineffective Governance

Poor or ineffective governance in many Africa countries has been one of the major stumbling blocks towards African development. Their ineffectiveness hinders or hampers development necessary for improvement of food security in the continent. Problems such as corruption, collusion, nepotism and tribalism have significantly hindered the government capacity for effective discharges of their duty (IFDRI 2002). Many people have considered corruption as the bane of Africa development. For example Transparency International has rated eight African Nations among the most corrupt in the world (TI 2003). Corruption and other government ineffectiveness have been found to be correlated with conflict, and often linked with hunger and food security problems (Messer and Cohen 2004)

Poor and inconsistent government policy towards agricultural development has been another major obstacle towards food security in Africa. Over the past decades, the policies of African governments towards food security and agricultural development have shown extreme bias towards export cash crops to the detriment of food crops. Export crops such as cocoa and coffee, which is hardly consumed in Africa, have attracted more attention from the government and to make the situation worst, most of these cash crops are exported in their raw form with no added value, which would have attracted better price and created

employment opportunities for the teeming unemployed Africa youth. According to Senghor (1989:376) the share of public agriculture investment barely exceeded 10 percent of total national investment including foreign aid and grant, even in countries where export earnings from agriculture are over 80 percent of total earning. He noted further that out of all this total investment in agriculture it is only a meagre and dismal fragment that trickles down to the food sub-sector. It is therefore obvious that successive Africa governments have paid only lip service to agriculture and food production despite the fact that almost 70 percent of their populace depends on agricultural activities for their livelihood.

Rau (1991:37) observed the implication of luring smallholder farmers towards production of cash crops. First, as farmers shift to cash crop production for export, their ability to produce food will be constrained. He noted further that farmers do not have capacity, for example due to time constraints and household labour shortage to produce food and cash crops at the level required. And despite the effort of women to maintain household food supplies and contribute to men's cash crops, no significant progress has been recorded in this direction; it always resulted in limited household food availability and rise in food price. Rau (1991:37) also noted increasing rise in food price, decline in household food consumption and high food price always reinforcing tendency towards cash crop cultivation and this will surely lead to food deficit and increase vulnerability to hunger and drives people towards poverty which is the main root cause of food insecurity in Africa. Producing and placing too much emphasis on the cash crop often requires extra labour to work on the farm at certain periods of the year and this labour demand is usually meet by people who did not regularly produce commodities for export and the landless labour. This demand for labour at certain periods of time usually gives rise to labour migration from one area to the other, for example poor households in the Northern part of Nigeria and the Middle belt usually migrate en mass to the southern part of the country to seek paid labour mostly in the cocoa planting area. The household and the region from which farmers and labour migrated usually experience economic disruption, as their own agriculture is neglected (Rau 1991).

Senghor (1989:376) also elaborated the attitude of bilateral and international agencies towards African agricultural development and described it as more damaging than the African government themselves. Multinational organisations and few African elites are the major benefactors of these pro-export crop policies of African governments and they show no interest in the food situation of the African people. Poor institutional set up and agricultural

production services have been the bane of the food production sector in Africa. The promotion of institutional reforms falls squarely within the exclusive responsibilities of each government. Strong political and financial commitments at national and international level are essential if rural institutions and service are to be effective in the process of expanding food production and improving the food security in Africa (Senghor 1989).

Chapter Four

Methodology

4.1. Research Approach

The methods employed in this study can be generally classified as qualitative. Qualitative research involves an in-depth understanding of human behaviour and the reasons that govern human behaviour (Silverman 2001). Unlike quantitative research, qualitative research relies on reasons behind various aspects of behaviour. Simply put, it investigates the why and how of decision making, as compared to the what, where and when of quantitative research. Hence, the need is for a smaller but focused sample rather than a large random sample, from which quantitative research categorizes data into patterns as the primary basis for organizing and reporting. There are different and various approach methods in qualitative study, there is no clear cut ways of doing it; it involves different sets of methods or a combination of two or more methods. Rossman and Rallis (1998) describe qualitative research as working in the field, face-to face with real people. They try to understand how people make sense of their worlds through multiple methods that are interactive and humanistic: talking, looking, listening and reading. Creswell (1997) describes qualitative research as an inquiry process of understanding based on distinct methodology traditions of inquiry that explore a social or human problem.

The researcher builds a complex, holistic picture, analyses words, reports detailed views of information and conducts the study in a natural setting. Flick (2002) submitted that qualitative methods are inherently multi-method in focus. This combination of different methods, otherwise know as triangulation (Denzin and Lincoln 2005) can best describe the methods employed in investigating the Millennium Village Project (MVP) towards achieving food security in Africa. Denzin and Lincoln (2005) describe triangulation as a strategy that adds rigour, breadth, complexity, richness and depth to an inquiry. Flick (2002), however, argues that triangulation reflects an attempt to secure an in-depth understanding of the phenomenon in question. Objective reality can never be captured. We know a thing only through its representation. Triangulation is not a tool or a strategy of validation, but an alternative to validation “The ultimate aim of qualitative research is to offer a perspective of a situation and provide well-written research reports that reflect the researcher's ability to

illustrate or describe the corresponding phenomenon. One of the greatest strengths of the qualitative approach is the richness and depth of explorations and descriptions" (Denzin and Lincoln 2005). Burns (2000) claims that qualitative research developed out of a more diffuse recognition of the implicit relationship between knowledge and human interest, thus leading to an advocacy of an alternative, more humanistic, investigative paradigm. He also observed that the conventional or traditional emphasis on factual knowledge and singular truth has becomes obsolete and is not really capable of addressing some real issue that concern day to day activities of the people. Qualitative method of research is a courageous attempt to reveal qualities of life, reflecting multiple realities of specific setting from participant perspective.

Despite all the strengths and good quality of qualitative research, it has been subjected to a lot of criticism. It has been said to be journalistic in nature or 'soft science'. Qualitative studies are tools used in understanding and describing the world of human experience. Since we maintain our humanity throughout the research process, it is largely impossible to escape the subjective experience, even for the most seasoned of researchers. As we proceed through the research process, our humanness informs us and often directs us through such subtleties as intuition or 'aha' moments. Speaking about the world of human experience requires an extensive commitment in terms of time and dedication to process (Myers 2002). Also qualitative research has been termed as unscientific or only exploratory in nature or entirely personal and full of bias (Denzin and Lincoln 1998).

4.2. The Field Study

Towards achieving food security in Africa, the Millennium Village Project was chosen as the case study, specifically the one in Nyanza Province in western Kenya, broadly referred to as Sauri Millennium Village Project. The location was chosen because it is the first Millennium Village where operation began in 2004 and again because of the collaborating relationship between Coventry University and Masinde Muliro University of Science and Technology in Kakamenga which is about 60 km by road from the village. Figure 4.4 shows the location of Kakamenga and the project site.

On arrival in Kenya for the two weeks field trip, the researcher was taken straight to the Kakamenga University Campus where a series of meetings and introduction to the various officials of the University took place. The director of the Centre for Disaster Management facilitated some of the logistic protocol. A research assistant who is a member of staff of the university was assigned to the researcher and most of the logistic operation was taken care of by him. Arrangement was made to visit the village site on the second day of arrival; choice of villages to be visited was made after careful deliberation and consideration bearing in mind time and cost available to the researcher. On arrival at Yala town the researcher and the assistant were directed to the small office used as a contact with the villages, where four field staff were met, the researcher's mission was conveyed to them and permission to enter the village was sought. However this was turned down as they were not empowered to take people to the villages without the written permission from the office in Kisumu which is the administrative office of the Millennium Village Project staff. This was about 60 km from the village office contact. Arrangement was quickly made to get to the office before the official closing hour in the office, and this was achieved, but unfortunately the Science Coordinator who is the overall coordinator of the Millennium Village Project in Kenya was not in the office throughout that day, as he was on an official visit to Nairobi. Appointment had to be made to see him on the next day.

On arrival at the Kisumu office on the next day, the researcher and the assistant were taken to the office to meet with the Science Coordinator. After introduction and explaining the purpose of the visit, he was surprised because he had never being briefed or informed about anybody coming to do a research during that period. This generated a lot of tension and feeling of uneasiness, but was latter calmed down by the researcher and reasonable diplomatic explanation was offered which soothed the tension. This was necessary because it would otherwise have been difficult for the researcher to gain their cooperation. This was supported by Gans (1962) who states that "If the researcher is completely honest with people about his activities, they will try to hide actions and attitudes they consider undesirable, and so will be dishonest". Consequently, the researcher must be diplomatic enough to get honest data and gain the necessary cooperation. However this was not really about been dishonest in getting honest data but to gain the Project Coordinator's support and cooperation so as to allow access to the village and offer other necessary assistance. However another challenge came up as he said he was not authorized to give approval to anything that has to do with research about the Millennium Village Project. He explained the guidelines involved which

looked cumbersome to the researcher, that the approval has to come from a committee of Columbia University in New York and the researcher was told it might be up to two weeks to get the approval from the New York. But this was actually due to logistic and protocol problems or largely due to lack of direct communication between the researcher and Millennium Project office prior to arrival in Kenya and over-dependency on the Kenya contact. However this was addressed after serious deliberation and intense persuasion, application was forwarded to the appropriate section and permission was granted to visit the villages.

Attention was later shifted to the scope of the studies and there was extensive discussion and deliberation with the Science Coordinator. He submitted that the time available to the researcher might not be enough to achieve the purpose of the studies. Reasonable suggestions were offered and looking at the time available to the researcher, some amendment were made to the already planned programme and he fast-tracked securing appointments for interview with the Programme Assistant, Agriculture Coordinator, Database Manager, Enterprise Coordinator and a Field Officer.

4.3. Respondent Selection

Based on the advice of the Millennium Village Project Science Coordinator and careful consideration by the researcher, six millennium village project officials including the Science Coordinator himself were selected for the interview. They were Programme Assistant, Agriculture Coordinator, Database Manager, Enterprise Coordinator and a Senior Field Officer. The selection of these officials was based on the importance of their portfolio and their relevance to the studies. Seven villages were visited out of the eleven villages in the cluster, but interviews took place in only six of the villages. Interviews could not take place in the seventh village because of difficulty encountered in tracking the farmers down and because of the time and cost constraint experienced by the researcher. Figure 4.1 shows all the villages in Sauri village cluster and their location. The villages visited were Silula, Nyaminia A, Nyaminia B, Yala A, Yala B, Sauri A and Sauri B.

Figure 4.1.Map showing all the eleven villages in the cluster.
Source (MVP 2005)

Three women were interviewed in Silula; three farmers were interviewed in Nyaminia A including one woman; two farmers were interviewed in Nyaminia B, three were also interview in Yala A, two women inclusive. Only one farmer was interview in Yala B, but this took a longer time than interviewing three farmers, because this farmer has a reasonable level of education and the interview process became more of a discussion than an interview. The farmer was very inquisitive and the researcher enjoyed it more because the conversation was in English. Because of the direct conversation between the farmer and the researcher, a reasonable amount of information was provided and the time spent was really worthwhile. One farmer was interviewed in Sauri A and no interview took place in Sauri B, though some observation and photography were taken. The selection of respondents was primarily determined by the accompanying Senior Field Officer, and this was based on his knowledge of the village and his understanding and relationship with the farmers. At first the researcher considered this as inappropriate and was not really comfortable with this selection process

and subtle query was thrown to the Field Officer, but after careful explanation that those farmers chosen represent the main activities and practices in the village this assured the researcher that no vital information would be omitted. Trust and confidence were reinforced in the selection process.

4.4. Data Collection

This research was done using a combination of the following methods of data collection

- Literature review and use of secondary data
- Semi-structured interview/interview guidelines
- Group discussion
- Observation

The combination of literature review, use of secondary data, semi-structured interview/interview guidelines, group discussion, observation and photography allowed a good breadth and gave rigour and richness to the studies and enhanced its objectivity. It made it possible to get the opinions and perspective of both the farmers and the Millennium Village Project Official. Silverman (2000) noted that "by having a cumulative view of data drawn from different contexts, we may, as in trigonometry, be able to triangulate the true state of affairs by examining where the different data intersect." Also, Denzin and Lincoln (1998) noted that qualitative research deploys a wide range of interconnected methods, hoping always to get a better fix on the subject matter at hand. Richardson (1996) observed that sampling considerations are interconnected with data collection as in the grounded theory approach; data sets may be drawn from any relevant source and are not restricted to any one mode of data gathering. Glaser and Strauss (1967) explicitly encourage the use of archival and other textual materials and a combination of source of data types.

4.5. Secondary Data Sources

The main sources of secondary data used in this research work were culled from first and second Millennium Village annual reports compile by the Tropical Agricultural Programme of the Earth Institute at Columbia University, New York. Other privileged documents and reports were given to the researcher by the Millennium Village Project official in Kenya. Useful data were also obtained from different United Nation reports and other relevant online databases. Review of relevant literature was undertaken at the initial stage of the project and throughout the duration of the project. This allowed the researcher to gain insight into and understanding of the issues concerning food security and low input agriculture system, as well as definitions, concepts and approaches to food security, and also to understand the working concept of the Millennium Village Project.

An obvious advantage of secondary data sources is that they are collected on a regular basis, monthly, quarterly or annually. This makes them up-to-date and provides some sort of reliability and objectivity. Secondary data are easily accessible and assist in making decisions about the research design. Thomas (1996) noted that when used in combination with other research methods such as interview, secondary data sources are essential in formulating questions for the interview. They are also a very useful means of checking the validity of findings of first-hand collection methods. Secondary information sources are valuable sources of information, although they have their limitations and the researcher has to be clear about these. Most official statistics are bias-ridden, they have been produced to serve the purposes of government and other organizations and their production is determined by the purpose and character of the organization that produced them (Sapsford and Jupp 1966).

4.6. The Interview Process

The approach used in the interviews was mostly semi-structured. The initial idea was to use the same interview guidelines to interview all the Millennium Village officials, but this was latter modified as each official has a different portfolio and is more conversant and equipped in one area than in other. Questions and wording were modified to suit particular interviewees as occasion demanded. Robson (2002) argues that semi-structured interviews

have predetermined question, but the order can be modified based upon the interviewer's perception of what seems most appropriate. The interview usually started with a brief introduction to the research purpose and acquainting the interviewee with the overall aim of the studies; that is, towards achieving food security in Africa using MVP as a case study. The interview with MVP officials was quite helpful to this research, because most of the questions put to the MVP officials resulted in them giving the researcher some document to back up their claim. Some of the interviews were recorded using a tape recorder with initial permission sought before the use and some were recorded using field notes.

The use of a tape recorder allows the interviewer to concentrate fully on the flow and direction of the discussion, on the next line of question or discussion and on the informant's gestures, which go a long way to show their commitment to their points, rather than trying to write down respondents' words. Also according to Russell (2002) use of tape recording allows raw data collected to remain for later study.

Most of the farmers interviewed were chosen and recommended by the Millennium Village Project Field Officer and most of the interviews took place on the farmers' farm plot. This encouraged modification and some form of digression from the original interview guidelines schedule. Gillham (2000) described this as flexibility and argued that the structured-unstructured dimension is false. Expert interviewers always have structure, which they use flexibly according to what emerges. Some of the questions were personalized to reflect each of the farmer's situation and circumstances. For example a farmer was interviewed on his own farm plot in Yala B village (Figure 4.2). This prompted some digression and other personal questions as related to him and his farm. According to Gillham (2000) interview is a conversation between two people, in which one person, the interviewer, seeks the response for a particular purpose from the other person, the interviewee. In some cases interview can be used as the primary source or only approach in a study, but they lend themselves well to use in combination with other methods, in a multi method approach just as in this study. Semi-structure and the use of interview guideline are very useful in qualitative research like this one, because the farmers use the language natural to them, rather than attempt to fit into the context of the study (Arksey and Knight, 1999)

With qualitative research interviews you try to understand something from the subjects point of view and to uncover the meaning of their experiences. Interviews allow people to convey

to others a situation from their own perspective and in their own words. Research interviews are based on the conversations of everyday life. They are conversations with structure and Purpose that are defined and controlled by the researcher. Although the research interview may not lead to objective information, it captures many of the subjects views on something. That is why the basic subject matter is not, as in quantitative research, object data, but consists of meaningful relations to be interpreted. Figure 4.2 shows the researcher interviewing a farmer on his onion farm plot in Yala B. Two types of interview methods were used in this study.

1) Informal Conversational Interview: This type of interview may occur spontaneously in the course of field work, and the respondent may not know that an "interview" is taking place. Questions emerge from the immediate context, so the wording of questions and even the topics are not predetermined. The major advantage is that the interview is highly individualized and relevant to the individual. Thus, it is likely to produce information or insights that the interviewer could not have anticipated. This type of interview requires an interviewer who is very knowledgeable and experienced in the content area and strong in interpersonal skills, since he or she will have considerable discretion in directing the interview. However, since different information is collected from different people, this kind of interview is not systematic or comprehensive, and it can be very difficult and time-consuming to analyse the data.

2) Interview Guide Approach: This may be the most widely used format for qualitative interviewing. In this approach, the interviewer has an outline of topics or issues to be covered, but is free to vary the wording and order of the questions to some extent. The major advantage is that the data are somewhat more systematic and comprehensive than in the informal conversational interview, while the tone of the interview still remains fairly conversational and informal. Like the conversational interview, this type of interview also requires an interviewer who is relatively skilled and experienced, since he or she will need to know when to probe for more in-depth responses or guide the conversation to make sure that all topics on the outline are covered. A possible drawback is that sticking to the outlined topics will prevent other important topics from being raised by the respondent. Also, while this format is more systematic than the conversational interview, it is still difficult to compare or analyse data because different respondents are responding to somewhat different questions.

4.7. Group Discussion

The researcher participated in two group discussions with women farmers in Yala B and with a group of Field Officers the researcher invited for lunch. The first group discussion with three women in Yala B (Figure 4.3) was very interesting because all the women spoke English and this helped the researcher to interact with them and seek their opinion and perspective about the Millennium Village Project. Blumer (1969) cited in Flick (2002) described a group discussion as a small number of individuals brought together as a resource group to discuss views about a common topic. He argued that this is more valuable many times over than any representative sample. The focus group places each individual in a group context, where conversation can develop and flourish in what could be considered a more natural or commonplace situation than in an interview or by using questionnaires and survey (Limb and Dwyer 2001). Seeking opinions of farmers in one hand and that of field officers on the other in group discussions enabled the researcher to have a balance of opinion about the Millennium Village Project.

Figure. 4.2. Researcher interviewing a farmer on his farm plot.

4.8. Observation

Being the first time the researcher had travelled to Kenya, there was a lot of curiosity and inquisitiveness on the part of the researcher. This led to keen observational activities. Observation was quite useful in this study because the researcher had heard a lot and read about the Millennium Village Project and even seen some pictures about MVP. Being there and observing what has been written, said and done was a great opportunity for the researcher to observe people and their environment in the natural setting. Black (1999) notes that the observational method of data collection gives more validity because data are collected in the

context of a real activity. The researcher was particular about poverty situation in the area and all the major traits of poverty were keenly observed and noted down. The researcher participates in what they are observing so as to get a finer appreciation of the phenomena. Mason (2002) argues that observation allows the generation of multidimensional data on social interaction in a specific context as it occurs rather than relying on people's retrospectives account, and on their ability to verbalize and reconstruct a version of interaction or setting. One of the weaknesses of the observation method of data collection according to Silverman (2006) is that researchers that participate tend to lose their objectivity. Another weakness of observation as a method of data collection according to Mason (2002) is the problem of transforming observational activities into a usable data form.

Figure 4.3. Researcher having a group discussion with women in Yala B

4.9. Data Analysis and Evaluation

The data collected in this study, from interview and observation, were transcribed into a useable format. This process was quite tedious, time consuming and laborious. Data produced was very voluminous and combinations of different methods were employed in sorting out the data to usable format. According to Kvale (1996) there are five methods of analysing and interpreting qualitative interview, they vary according to their uses and they include meaning condensation, meaning categorization, and narrative structuring, meaning interpretation, and generating meaning through ad hoc methods. Patton (1990) also addresses a number of techniques for quantifying and analysing qualitative interview data. Meaning condensation is the type of approach in which participants' responses are shortened to find the main point of each statement. In the essence, the responses are paraphrased to provide a succinct and main picture of the research data. Meaning categorization involves the coding process of the interview, in this case statements are divided into different categories and this depends on the objectives of the study. They could be broadly categorized, and sometimes they allow the results to be reduced to tables, charts and figures. Narrative structuring focuses more on the stories told during the interview process and sometimes helps to set the scene or serves as backdrop for a study and this also helps to convey the emotion involved in the interview process. Meaning interpretation involves a process whereby the interviewer goes beyond what is actually said in the interview and examines the content and deeper thoughts and feeling expressed by the interviewee, and the ad hoc method is an open-ended system that uses a variety of methods based on the situation and the specific needs of the study. This study made use of a combination of all the five methods in combination with what Mason (1996) described as non-cross sectional data organization, which involves looking at discrete parts, units within a data set, and documenting something about those parts specifically. This has been found to be suitable for a field study or those that involve a case study like this one, because it allows an investigation to retain the holistic and meaningful characteristics of real-life events.

4.10. Limitation

Some limitations and challenges were confronted in the course of this study that might be responsible for the quality of the data obtained. Time and cost constraints were the obvious

ones, spending just two weeks in Kenya affected the quality of data obtained because achieving food security in Africa is a major problem confronting the continent, an issue that affects almost 300 million people cannot be explored within this short period of time for fieldwork; however concrete effort was made to address this by supplementing the study with literature review. Also lack of some basic baseline data or report prior to the commencement of the Millennium Village Project in the area posed some difficulty in the validation of some of the claims. The great influence exerted in selection of the farmers interviewed by the field officer assigned to the researcher might have in one way or the other impacted on the actual state of the event and quality of the data obtained from the interview. But employing a combination of different methods of data collection such as observation and group discussion must have provide the needed balance. Millennium Village was still at an infant stage at the time of the study and this was largely responsible for exerting control over the selection of the farmers by the field officer. An attempt was made to correct this and some balance was gained when the researchers abruptly started a group discussion with a group of women farmers at Yala B (Figure 4.3). Never-the-less the researcher cannot claim the 100 percent authenticity of the representative quality of the data obtained from the farmers.

4.11. Study Area

The study area is located in Nyanza Province in the western part of Kenya, Sauri is the general nomenclature given to the area. Sauri comprises eleven villages within a cluster (Figure 4.1 and Figure 4.4) shows the position of Nyanza province where Sauri is located. Sauri is located in the Kenya highlands, 1400-1500 above the sea level, west of the Rift Valley and 30 km north of Lake Victoria. The equator lies just to the north of Sauri (0° 06'N). The general topography is undulating with ephemeral streams, rivers and wetlands meandering through the rounded hills.

Figure 4.4 Map of Kenya showing political /administrative boundaries

Source (Map of the World 2007)

4.11.1. Climate

The area is classified as the sub humid tropics with an average temperature of 24ºC, ranging from 18 to 27ºC with an annual rainfall of 1800 mm (Figure 4.5). Rainfall is bimodal, divided into the long rainy season from March to June (1120 mm) and the short rainy season is from September to December (710 mm). The short rains are extremely variable but highly predictable due to strong influence of the El Nino Southern Oscillation.

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Figure 4.5. Monthly mean rainfall from 1996 to 2004
Source: (MVP 2006)

4.11.2. Soil

The main soils are classified as Oxisols/Nitosols (Kandiudalfic Eutrodox) and are clayey, reddish, deep and well drained. They were derived from volcanic materials and were once very fertile but are now depleted in nitrogen (N) and phosphorus (P), two of the main essential plant nutrients and this is the main reason for justifying the use of chemical fertilizer to replenish the soil. The pH ranges around 5.5, though soil acidity is not a major problem for plant growth. Soil carbon level is (1.3%C) and is half that of the native soils. There are some patches of wetland soils along the rivers and stream

4.11.3. Administrative and Political

The Sauri Sub Location is within Yala Division, Siaya District of Nyanza Province in the Western part of Kenya. The sub location covers 8 km² and comprises 11villages. Within the political setting of Kenya, a local chief is responsible for covering the area, assistant chief responsible for the sub location and the village elders are the representative of the people. They are usually subjected to interview before they can qualify as the representative and they also represent the Office of the President of Kenya. A Councillor is elected by the villagers.

4.11.4. Social Cultural and Social Economic

Ninety-nine percent of the populations in the Sauri Sub-Location are Kenyans from the Luo ethnic group. The main languages spoken in the area are Dholuo, Kiswahili and English. Polygamy is the most common form of marriage among the Luo ethnic people of Kenya.

The population density of Sauri is extremely high, close to 700 people per km². Figure 4.6 shows the age and gender population distribution. Households are scattered throughout the agricultural landscape. Agriculture is the primary livelihood in the area. The land area for farming is usually less than 0.5 ha per household. At the onset of the project insufficient food was produced for a family of five at current production levels. Sixty to seventy percent of the people in Siaya District live below the Kenyan poverty line of $1 per day. Over 20 percent of the children aged less than 5 years are underweight (MVP 2006).

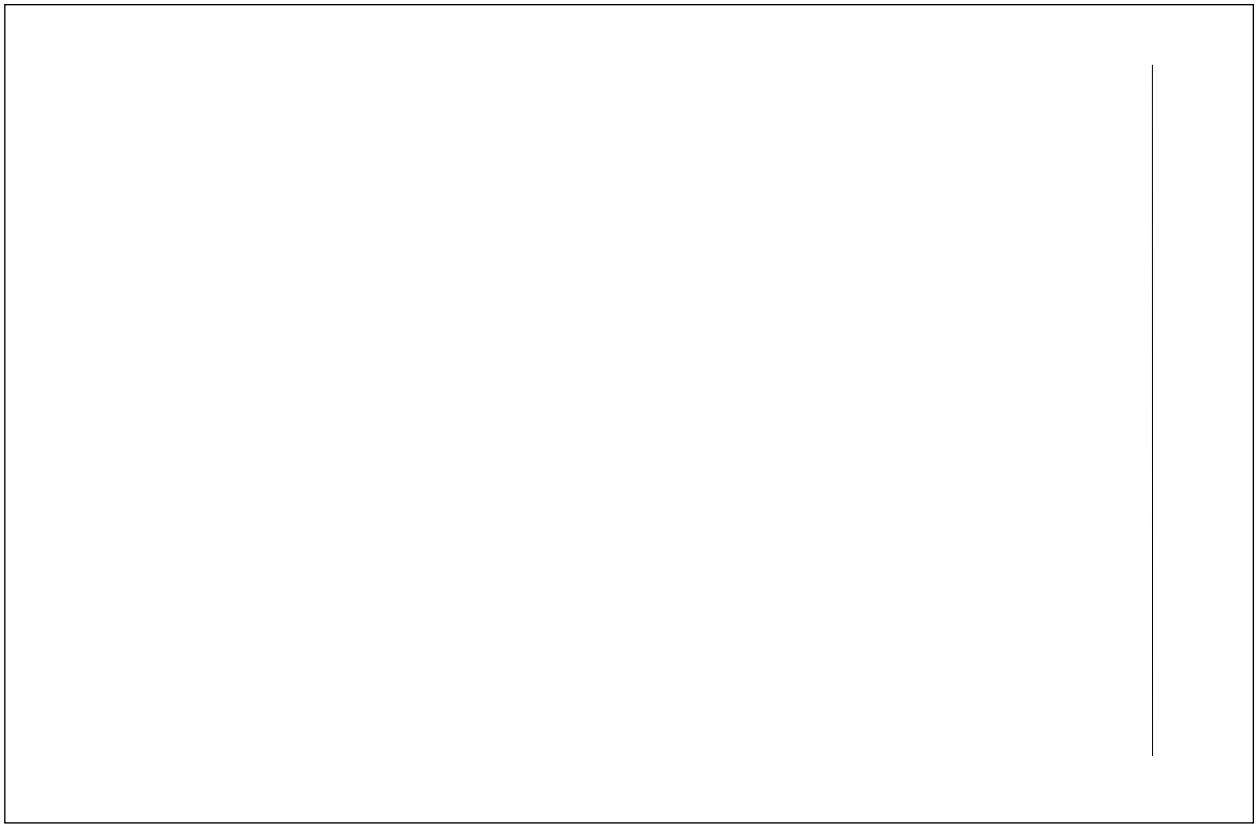

Figure 4.6 Population pyramid for Sauri-Kenya

Source: (MVP (2005)

Chapter Five

Result and Discussion

Background Information

Over one billion people are living in extreme poverty throughout the world with the distribution across all the regions of the world. Poverty incapacitates them from maintaining and having access to the basic needs of life. The poor are mostly concentrated in Asia, Latin America and Africa, especially Sub-Saharan Africa. Poverty is a multidimensional social phenomenon; according to Leisinger, Schmitt, and Rajul (2002:60) poverty is characterised by not only lack of essential criteria for material affluence, but also of the absence of opportunities and choice that are of key importance to human development; a long and healthy life, a reasonable standard of living, and freedom, self worth, self respect and esteem of others. Living on less than $1 a day is the main criterion for poverty classification and this is also the World Bank benchmark (Chen and Ravallion 2004).

Being poor is a subset of poverty and it is this poverty that prevents people from accessing or gaining entitlement to food. Sachs (2005:20) provides an insightful categorisation of poverty that is generally acceptable by the World Bank and most of the developmental agencies and policy makers. He classified poverty into three degrees. Extreme or absolute poverty, moderate poverty and relative poverty. Extreme poverty means that households cannot meet basic needs for survival. They are chronically hungry, unable to access health care, lack the amenities of safe drinking water and sanitation, lack access to basic education for some or all of the children, lack basic housing unit and cannot properly cloth themselves. Extreme poverty occurs mainly in developing countries of the world. Figure 5.1 shows the distribution of poverty in the world and Figure 5.2 shows the degree of extreme poverty across the region of the world and compares the pattern from 1981 and 2001. According to Sachs (2005:20) moderate poverty generally refers to condition of life in which basic needs are meet, but just barely and relative poverty is generally constructed as a household income level below a

given proportion of average national income. The emphasis of this study focuses only on extreme poverty especially in sub-Saharan Africa and how it prevents people from gaining access to food. While most of the regions of the world have made significant progress towards eradicating extreme poverty, since 1981 substantial progress has been recorded in East Asia and some progress was observed in South Asia as well, but the situation in Sub-Saharan Africa is getting worst. See Figures 5.2 and 5.3 for the numbers and proportion of the extreme poverty.

For the first time in the history of the world, all the world leaders converged in New York City in the year 2000 to make an historic commitment by all the 191 members of the United Nation by signing the United Nation Millennium Declaration.

Figure 5.1.Map of the world showing poverty distribution
Source: (FAOSTAT 2008)

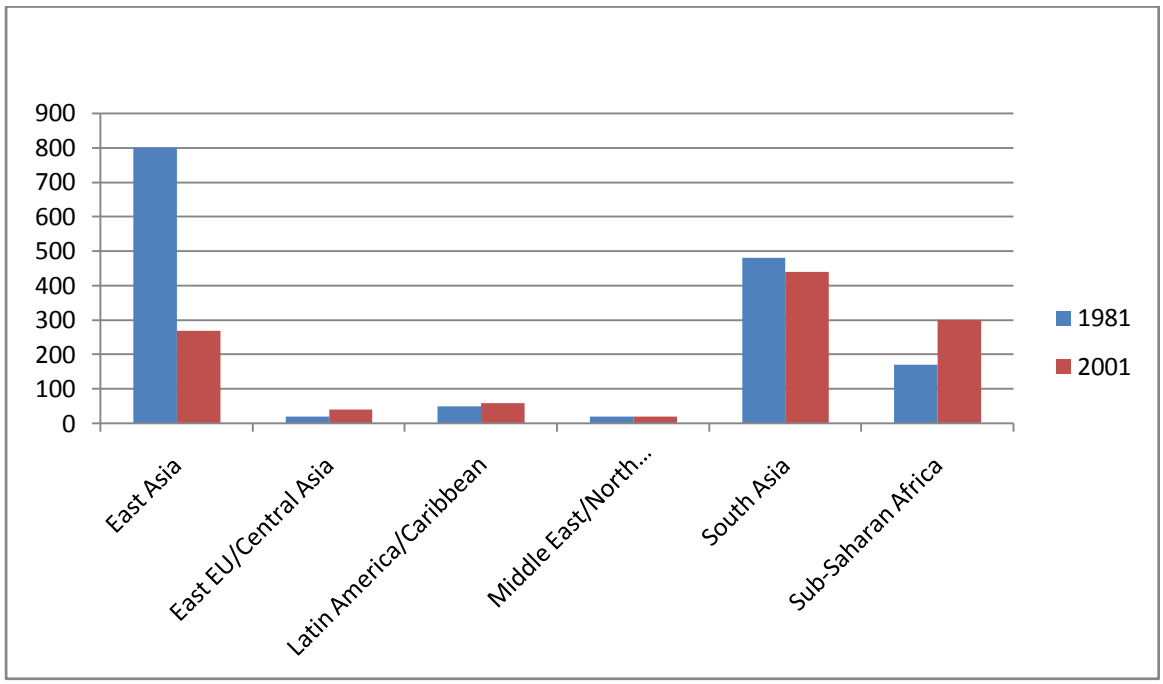

Figure 5.2: Numbers of extreme poor

Source :(Adapted from Sachs 2005)

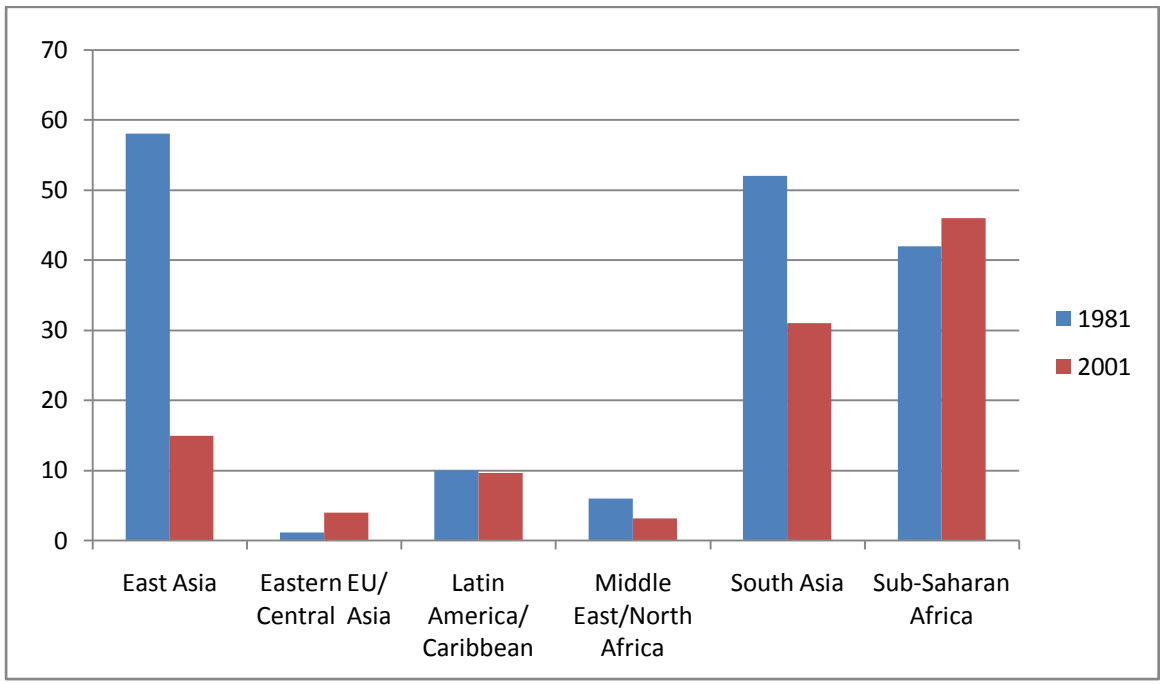

Figure 5.3: Proportion living in extreme poverty

Source :(Adapted from Sachs 2005)

In further commitment to the gathering of the world leaders in 2000, another commitment was made in the year 2002 which gave birth to the Millennium Development Goals.

5.1. Millennium Development Goals

The Millennium Development Goals (MDGs) are set of goals agreed to by every country in the world, they are well set with time bound and measurable targets for eliminating all facets of extreme poverty. MDGs were developed out of the eight chapters of the United Nations Millennium Declaration, signed in September 2000. The eight goals and 21 targets are as follows:

Eradicate extreme poverty and hunger

- Halve, between 1990 and 2015, the proportion of people whose income is less than one dollar a day.

- Achieve full and productive employment and decent work for all, including women and young people.

- Halve, between 1990 and 2015, the proportion of people who suffer from hunger.

Achieve universal primary education

- Ensure that, by 2015, children everywhere, boys and girls alike, will be able to complete a full course of primary schooling.

Promote gender equality and empower women

- Eliminate gender disparity in primary and secondary education preferably by 2005, and at all levels by 2015.

Reduce child mortality

- Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate.

Improve maternal health

- Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio.

- Achieve, by 2015, universal access to reproductive health.

Combat HIV/AIDS, malaria, and other diseases

- Have halted by 2015 and begun to reverse the spread of HIV/AIDS.

- Achieve, by 2010, universal access to treatment for HIV/AIDS for all those who need it.

- Have halted by 2015 and begun to reverse the incidence of malaria and other major diseases.

Ensure environmental sustainability

- Integrate the principles of sustainable development into country policies and programmes; reverse loss of environmental resources.

- Reduce biodiversity loss, achieving, by 2010, a significant reduction in the rate of loss.

- Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation

- By 2020, to have achieved a significant improvement in the lives of at least 100 million slum-dwellers

Develop a global partnership for development

- Develop further an open trading and financial system that is rule-based, predictable and non-discriminatory. Includes a commitment to good governance, development and poverty reduction—nationally and internationally.

- Address the special needs of the least developed countries. This includes tariff and quota free access for their exports; enhanced programme of debt relief for heavily indebted poor countries; and cancellation of official bilateral debt; and more generous official development assistance for countries committed to poverty reduction.

- Address the special needs of landlocked and Small Island Developing States.

- Deal comprehensively with the debt problems of developing countries through national and international measures in order to make debt sustainable in the long term.

- In cooperation with pharmaceutical companies, provide access to affordable essential drugs in developing countries.

- In cooperation with the private sector, make available the benefits of new technologies, especially information and communications.

(UNDP 2005:xxiv)

5.2. Millennium Village Project

The Millennium Village Project (MVP) emerged out of the special and peculiar needs of Africa towards achieving the Millennium Development Goals, It was discovered that Sub-Saharan Africa is at the greatest risk of not achieving the goals and struggling to progress on almost every dimension of poverty, such as hunger, lack of education and prevalence of disease. MVP seeks to end extreme poverty by working with the poorest of the poor, village by village throughout Africa. The Millennium Project was commissioned by the United Nations Secretary General in 2002 to develop a concrete action plan for the world to achieve the Millennium Development Goals and to reverse the grinding poverty, hunger and disease affecting billions of people. In 2004, the independent advisory body headed by Professor Jeffrey Sachs, presented its final recommendations to the Secretary General. The bulk of the Project's work was carried out by ten thematic Task Forces, each of which also presented its own detailed recommendations in January 2005. The Task Forces comprised a total of more than 250 experts from around the world including: researchers and scientists, policymakers, representatives of NGOs, UN agencies, the World Bank and IMF (Sachs 2005).

After the presentation of the Millennium Project's final reports, the secretariat team worked in an advisory capacity through to the end of 2006 to support the implementation of the Project's recommendations, with special focus on supporting developing countries' preparation of national development strategies aligned with achieving the Millennium Development Goals

Figure 5.4: Map of SSA with main agro-ecological zone and MVP location in Africa

Source: (MVP 2005)

5.2.1. Theoretical Framework

It is difficult to place Millennium Village Project into one particular or rigid theoretic idea or concept, because it is a multifaceted approach which attempt to deal with and offer solutions to every dimension of poverty. However an attempt can be made to explain and fit in different concepts as applicable to MVP. Sachs (2005) attempted to describe it as clinical diagnosis and approach, but there is no recognition for this in literature about poverty. Therefore effort can only be made to use some of the basic approaches and concepts in the literature review to explain some of the approaches employed within the MVP. MVP is based on the foundation and approaches towards achieving all the eight Millennium Development Goals as highlighted earlier, though all these goals are interconnected and complement one another. However attention will only be directed and given to the first goals of eradicating extreme poverty and hunger.

Millennium Village Project recognises poverty as the main cause of hunger and believes that halving or reducing hunger is closely linked with that of achieving the other Millennium Development Goals. They believe that any progress made towards hunger reduction will also spread progress towards the other goals. MVP believes hungers is both cause and an effect of poverty and identify three types of hunger, acute, chronic and hidden. Ten percent represent the acute hunger and are the ones that mostly gain the media attention; the remaining 90 percent is made up of the chronic hungry people UNDP (2005:2). Chronic under-nourishment is caused by a constant or recurrent lack of access to food of sufficient quality and quantity, good healthcare and necessary caring practices, and hidden hunger is lack of basic micronutrient (vitamins and minerals). So MVP gives more emphasis to chronic hunger because it is what affects the majority of people, and long-term solutions are needed, unlike short-term and emergency aid that is usually employed with the acute hunger. So the two most basic approaches as described in the literature review will be used to evaluate the Millennium Village Project.

5.2.2. Entitlement Approach to MVP

The results of some of the research by the group of researchers involved in MVP shows that despite an abundant world food supply, people still go hungry and despite the increase in food production brought about by the Green Revolution and associated declines in food prices many people cannot still afford to buy enough food in sufficient quantity and quality in the market (UNDP 2005:3). This obviously points to one thing, declining of entitlement. Most rural people depend on agricultural activities for their livelihood and they are the people that are most vulnerable to food insecurity. This is because most of them gain their entitlement through their own production and their own subsistence way of farming which heavily depends on rain fed farming and this is characterised by low yield that is not capable of securing their entitlement. Entitlement to food is very important. According to Dreze and Sen (1989:9) the mere presence of food in the economy or in the market, does not entitle a person to consume it. People gain entitlement to food by: producing their own food; by exchanging money that they have earned through labour for food; or through transfer from kin, community or state. Millennium Village Project recognises that there are only two basic ways by which rural people gain their entitlement, through their own production and by exchanging money they have earned from their own labour. And these two ways have been under consistent decline, due to poor yield of farm produce and lack of paid labour opportunity for the rural dwellers.

Therefore the emphasis of the MVP concept or approach is to simultaneously find ways to increase the farm productivity by giving farmers access to a high yielding seed and seedlings and provision of cheaper and affordable inputs. And also to expand the entitlement access of farmers by encouraging them to engage in agricultural business that will be profitable enough and help them escape the poverty trap. Increased earning will definitely give them access to market and they will be able to expand their entitlement bundle.

5.2.3. Sustainable Livelihood Approach and MVP

According to Chambers and Conway (1992:9) a livelihood comprises the capabilities, assets and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base. The sustainable livelihood approach (SLA) is based on the following core concept; people centred, holistic, dynamic, building on strengths, macro-micro links, and sustainability. These basic core tenets can be used to explain its applicability of the SLA to Millennium Village Project. Just like SLA, MVP is also an integrated approach to combat or address all facets of poverty. MVP is working towards achieving all the eight MDGs. Both agree that poverty should not be confronted from one direction, because poverty is not caused by one thing and so there are many ways to combat it as well. All the basic tenets of SLA are what MVP is always trying to build on. MVP is basically about the rural people and all the major activities are built and woven around the rural dwellers, so in this way MVP can claim to be people centred. MVP is also holistic and dynamic because it is an attempt that is trying to prove its potency and capabilities towards eradicating poverty. Therefore it was designed to be dynamic, flexible and adaptable to the need of the local people. MVP is also trying to build on the potential capability and ability of the local people, the project aims to inspire the people to really help themselves.

One of the major aims of the Millennium Village Project is to develop a sustainability strategy for the project. A project that cannot be sustained and maintained by the capability and the ability of the local people without much external needs will definitely fail in the long run. MVP set a specific time and period bound of five years and believes the project should be able to sustain its self after this period of time. It was aimed to be scaled up and linked up with the national development programme of each national government in order to be sustainable in the long run, which is, exploring the benefit of macro and micro economic synergy and achieving its broader objective of eradicating extreme poverty. Rural livelihood is a very complex concept and it is only a framework like SLA that is capable of exposing and unravelling the complexities and interconnectivity.

5.3. Sauri Millennium Village Project

Sauri Millennium Village Project comprises eleven villages clustered together and generally referred to as Sauri (see Figure 4.1). The population density of the area is quite high, close to 700 people per km²; Agriculture is the primary basis of people's livelihood, close to seventy percent of people living in the Sauri area live below the Kenya poverty line of $1 a day. Decline in agricultural production associated with poor yield of farm produce and total or complete bankruptcy and close down of most of the sugar cottage companies which most people depend upon as off-farm means of earning and supplementing the basic agricultural livelihood, worsened the situation and drove more people to the poverty brink. Also the incidence of HIV/AIDS coupled with malaria incapacitated lots of people from engaging in physical activities and seriously impacted negatively on the labour availability and productivity. High cost of basic farm inputs which are beyond the reach of the farmers was another contributing factor to the agrarian decline in the area prior to the commencement of the project. Some basic criteria was used in considering Sauri as part of the Millennium Village Project, Sauri is classified as part of what Sachs (2005) refers to as poor of the poorest and fall within an area considered as hunger spot, and is located in Kenya which is considered by the project planners as reasonably well governed.

The Millennium Village Project aims to establish a foundation of evidence that rural Africa can be on the path towards achieving the Millennium Development Goals using science-based, proven and practical interventions over a five-year timeframe. The Project will empower individual African villages to achieve the MDGs through the implementation of comprehensive, community-based, low-cost, integrated rural development strategies delivered within the budget recommended by the UN Millennium Project. This budget is realistic in view of the public commitments of the G8 and the European Union in 2005 (MVP 2005). According to Sanchez *et al.* (2007:16776) the main principles of the MVP are:

- Science- and evidence-based, implementing technologies and practices that have already been proven

- Community-based, with a participatory approach to planning, implementation, and monitoring that contextualizes the specific set of intervention for each village

- Enhanced by local capacity development in technical, managerial, and participatory skills

- Based on multi-sectoral and integrated interventions.

- Geared toward gender equality and environmental sustainability

- Linked to district, national, and global strategies.

- Supported by partnerships with other development groups.

- Cost-shared by the community, government, and donors.

- Supported by increased national-scale financing of public goods in line with increased official development assistance (ODA) made available to African government

This project, a partnership between the Earth Institute at Columbia University, the UN Millennium Project, Millennium Promise and national governments, is the product of five years of intensive preparation by hundreds of scientists and development experts from the UN, governments, NGOs and academia working under the mandate of UN Secretary General Kofi Annan and former World Health Organization Director General Gro Harlem Brundtland. To complement this deep knowledge base, the Project collaborates with some of the poorest people on the planet and their local and national governments to develop solutions that meet their specific needs (MVP 2005).

Millennium Villages are explicitly based on achieving the Millennium Development Goals and are anchored by three interconnected components: (i) the principles of community participation and leadership, (ii) science-based innovations and local knowledge, and (iii) a costed, national action-plan for reaching the time-bound and targeted objectives of the MDGs and other national development priorities (MVP 2005).

The implementation of the Millennium Villages across Africa during 2006 is critically important. The wide scale implementation of these interventions will create a catalyst for greater momentum towards achieving the MDGs across Africa. By reaching hundreds of thousands of people across ten countries and in every agro-ecological zone, the Millennium Villages Project will provide convincing evidence that (i) the combination of regionally specific, science-based interventions and local ownership is an effective means of alleviating extreme poverty regardless of agro-ecological or political conditions, and (ii) reaching the benchmarks proposed in the MDGs is achievable and within the cost estimates. In addition, the Project's implementation will have demonstrated its ability to garner the support of the leadership in each Millennium Village country. The leadership of African countries working collectively on one project embodies the type of shared international effort that is crucial to achieving the MDGs (MVP 2005). The Millennium Villages Project is based on a five-year implementation plan. The Project's goal featured the first-year findings at the G8 Summit in 2007.

The Millennium Villages Project was developed by a distinguished team of scientists and development experts at the Earth Institute at Columbia University, guided by the recommendations of the UN Millennium Project. Overall implementation is managed by Millennium Promise with African nationals from each country hired specifically for the Project, working in collaboration with the villagers themselves and the local and national governments. The UN Millennium Project plays an integral role supporting participating national governments in implementing complementary national-level policies. Governments, NGOs and development community leadership in each of the participating countries are key partners (MVP 2005).

The Millennium Village budgets are based on a detailed analysis of the first year of operations of the first two Millennium Research Villages and the recommendations of the UN Millennium Project to determine the cost of achieving the MDGs. The necessary investments cost $110 per person per year in each village for a five year period and are funded by:

- $50 Millennium Promise donors
- $30 Local and national governments
- $20 Partner organizations and in-kind corporate giving

- $10 Village members, typically through in-kind contributions of their time and expertise

Financial and operational sustainability are central to the Millennium Villages Project and are interwoven throughout the project's funding and implementation models. The interventions are structured as investments to allow the village to take the initial steps out of poverty and set itself on the course of economic growth and equitable development. The objective is to empower each village to meet the MDGs no later than the target year of 2015, and in many cases as early as 2010. Funding Requirements: Each Millennium Village requires a donor investment of $300,000 per annum for five years. This includes a cost of $250,000 per village per year (5,000 villagers per village multiplied by $50 per villager) and an additional $50,000 per village per year to cover logistical and operational costs associated with implementation, community training, and monitoring and evaluation (MVP 2005).

During 2006, Millennium Villages planned to operate in 10 countries and 12 geographic sites as shown in Figure 5.4, with a total coverage of at least 78 villages. Financial support was expected from several sources, including a major grant from the Government of Japan, private foundations and individual philanthropists (MVP 2005). The project aimed to create and demonstrate a concept or model for achieving all the MDGs that will be capable of general expansion all over the Africa. And the MVPs are all directed towards poverty eradication. The project was divided into three categories, stages or types and each type have specific goals to achieve. The first stage was to proof and provides a convincing approach and concept that MVP is not like all the other failed past developmental project. The second and third stages are made up of scalability and general expansion of the project.

Results

The results is comprise the result obtained from the initial baseline survey culled from both first and second annual report from Sauri and other privilege report given by the project official, and the result obtained from interview with both the MVP officials, farmers and group discussion.

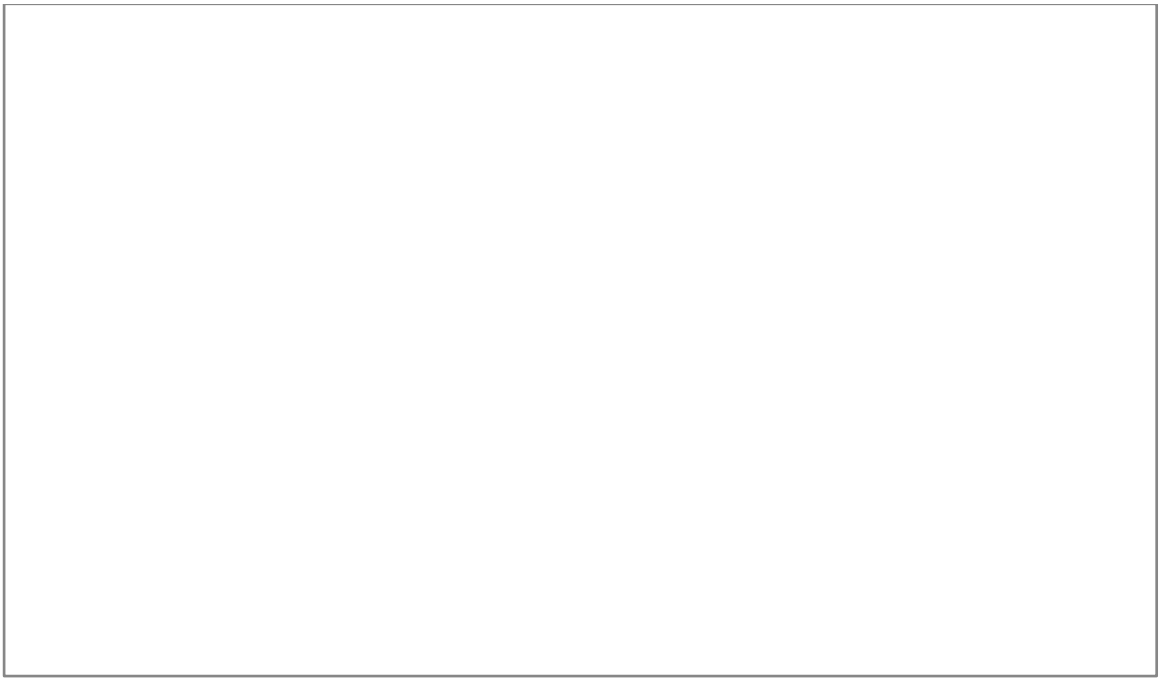

Figure 5.5 Income compositions in Sauri village

Data Source: (MVP, 2006)

5.4. Rationale and Justification for the Millennium Village Project

There is high rate of poverty in Africa, which is characterised by extreme shortage of productive capital among the rural dwellers where the majority of Africans live. People are caught up in the poverty trap characterised by chronic hunger, diseases, income of less than

one dollar a day, coupled with total absence or collapse of basic infrastructure. The high prevalence of deadly disease such as malaria, HIV-AIDS, tuberculosis, diarrhoea and other diseases has increased mortality and morbidity rate and posed a very negative effect on labour and farm productivity. People live below subsistence level and with a very poor standard of living. They struggle to survive because their survival depends on low or zero financial saving, and the depletion of natural capital. Extreme poverty has prevented people from self-financing farm inputs on the open market, and lack of basic collateral and high cost of doing business prohibit the finance of inputs through market based credit. Bank and credit owners consider small scale farming as too risky, unreliable and unprofitable, and that prevents rural people from accessing credit. This means that the majority of rural households have to plant their crops without the necessary input, such as fertilizer and high yielding seed and seedlings on the already depleted soil making them more vulnerable and exposed to food insecurity and other related problems because their farm yield is not capable of securing a decent living for them and because the majority of them depend on their own insufficient production as means by which they access food (Mutuo 2007). These and some other factors compounded the woes of the rural dwellers in Africa and make it more difficult for them to get out of the poverty trap. They are not capable of doing it on their own they need external and well coordinated and well targeted approaches like Millennium Village Project which is based on achieving Millennium Development Goals. People need help so they can also help themselves

5.4.1. Approach and Strategy

Millennium Village Project works towards achieving Millennium Development Goals, and since MDGs comprise many interconnected development projects, the approach dictates a rather complex interwoven and interconnected approach and methods. According to Mutuo (2007) the underlying hypothesis of the MVP is that the multifaceted nature of poverty in rural Africa can be overcome through concerted and targeted public-sector investment to increase and raise rural productivity, which will increase private-sector saving and investment. It is only when people are giving chance, ability and capacity to save part of their earnings, can they start climbing out of poverty ladder. He claimed further that by significantly augmenting the capital stock of the household and the community in several dimensions, the poverty trap which is the main cause of hunger, and other food insecurity

problems can be escaped. The basic natural, human, infrastructure and financial capital need to be increased. Soil is a fixed capital and is very limited and is the basis by which rural dwellers depend for their livelihood. The productive capacity needs to be fortified and increased by replenishing the soil of the vital soil nutrients so as to enhance farm yield and productivity. Basic infrastructure capital like roads, power and telecommunication will go a very long way in smoothing and enhancing effective rural activities. Human capital like skills and sound health is also vital and financial capital like household assets, collateral and microfinance need to be raised above the subsistence threshold level, above which the village can move toward self-sustaining economic growth and development. The approach is to carry out this on a large scale, village and district, and even up to national scale. UNDP (2005) recommended that such capital investment be made at an appropriate magnitude and time scale, dealing with all sectors with cost shared between communities, government and donors.

This approach is so different from the past developmental projects such as rural integrated projects of the 1970's and 1980's which focused on macroeconomic stability or incremental steps in a single sector. According to Sanchez *et al.* (2007) this kind of public investment at such a large scale will initiate a positive dynamic of saving and growth that will support private-sector investment in two ways. It will firstly increase household incomes above the subsistence level, so that household-based capital accumulation and microfinance become feasible and secondly, the provision and presence of infrastructure capital, such as good roads, power and telecommunications will encourage the inflow of capital from outside investors. Agriculture is the basis of African rural livelihoods, the economic development woven around agriculture will raise the rural communities above the subsistence level and encourage commercial farming activities that will give them the opportunity to save, invest and encourage diversification into profitable non-farm activities.

The main strategy focuses on the four interconnected rural priorities as identified by the project planners; agricultural productivity, which is the basis of the rural livelihood in Africa, public health, education and infrastructural development. The interventions are undertaken as single integrated project so as to complement one another. Progress made in one sector will translate to progress in another. For example increase in food production will have positive effect on education and health, increased food production will translate to increases in

nutritional well being, thus contributing to sound health and stimulate learning and skill accumulation thereby impacting positively on the education of the rural communities

5.5. Sustainability

Most of the past developmental projects in Africa failed not only because the approaches were faulty but because local input into the project were not sufficient enough to guarantee local ownership and continuation without external assistance. Most past projects collapsed immediately after the ceasing of external input into the project. MVP project officials recognise the consequence of this past approach. According to Mutuo (2007) the MVP is striving to establish a convincing and ground-level evidence to prove that all recommended intervention strategies are capable of lifting the rural African out of the poverty trap and achieving economic viability through community empowerment backed up with adequate resources. By increasing and raising agricultural productivity, diversification into higher yielding and value crops, and promoting off-farm employment through various enterprises, incomes will increase in the villages. Higher incomes will raise household earnings and savings, thereby accelerating economic diversification and household investment in human capital. The resulting economic growth in the village will bring about reduction in income and non-income poverty, and provide the communities with the opportunities to finance a growing share of investment towards achieving the Millennium Development Goals within a set time frame. The exit strategy is set within the first five years, all the support will be given to the villages within the set period of time and a gradual withdrawal will accomplish each successful stage of intervention. For example see (Table 5.1), the first year of the MVP witnessed massive fertilizer and input subsidy and reduction in the subsequent year and total withdrawal will be enforced at a point when it is determine that villages are able to cope on their own without further subsidy. This might be easy to achieve in agricultural sector within the five years time frame, continuous assistance might be required in the health sector and further infrastructure development, basically this will be part of local and national government responsibility towards their people.

Table 5.1 Basic food production increases from Sauri

Year	Area planted (ha)	Grain yield (t/ha)	Input subsidy (%)	Production (t)	Production increase	Calorie food requirement index
2004	220	1.9	0	418*		0.43
2005	327	4.9	89	1,625	3.9	1.66
2006	364	6.2	45	2,257	5.4	2.31

Caloric food requirement index is the ratio of production to food needs (978 t of maize per 5,000 people)

Source: (MVP 2005, 2006, Sanchez *et al.* 2007)

Critical to sustainability of the MVP is empowerment and capacity building of the local people and helping them to achieve basic skill such as sustainable agronomical practices and various farm and non-farm enterprises. See Tables 5.2 and 5.3 for various capacity building and training opportunities given to the farmers within the first two years of the programme. By building local technical, administrative and entrepreneurial capacity, the MVP empowers local groups to identify top priorities and pressing problems of most community members, their responsibilities for developing workable and cost effective solutions and their central role will boost their confidence and enhance and create initiative and creativity to solve problems among themselves in a locally adaptable ways. Building on the existing local knowledge will guarantee and promote sustainability in the long run and they will be less dependent on external assistance.

Table 5.2. Training offered, number of participant and facilitator

Source: (MVP 2005)

Table 5.3. Attendance during training of farmers in banana enterprise

Source: (MVP 2005)

5.5.1 Agricultural Sustainability and Fertilizer Subsidy

The majority of small scale farmers in Africa operate on a marginal piece of land which is lacking in the basic soil nutrients, and that is the main reason for very poor crop yields. Uncontrollable use of chemical fertilizer and pesticides has been found to be a major contributor to environmental pollution. Small scale rural farmers need to be encouraged to imbibe sustainability practices because this will empower them to work with natural processes to conserve resources such as soil and water at the same time minimising waste and pollution. Farmers who use sustainable approaches substitute knowledge for pesticides and fertilizer. Using crop rotation and other environmental friendly adjustments to solve problems; for example, soil enrichment produces healthy plants that are capable of resisting disease, cover crops prevent weeds and inhibit erosion and use of natural predators will help in controlling pests. Diru (2007) justifies the uses of fertilizer and provision of fertilizer subsidy to farmers especially in the first two years of the project. He claims that almost all the soil in the entire village has been degraded and depleted of the basic soil nutrient most especially phosphorus and nitrogen. The soils are not capable of any productive farming activities. Figure 5.4 shows the retarded maize plants due to depletion of the soil nutrients. Farmers are resource poor and fertilizer cost is beyond their reach. Subsidizing fertilizer is also an incentive to promote farmers' adoption rate.

The communities were given a total of nearly 800 of 50 kg bags of DAP and nearly 800 of 50 kg bags of urea (Table 5.4). Every farmer having 0.4 ha and above was given 50 kg of DAP per household and 50 kg of urea, while those with less than 0.4 ha got according to their farm sizes. And for every 50 kg of DAP there was 10 kg of high yielding improved maize seed variety WS502. This was not only necessary for total adoption but also to fix the hunger and food insecurity situation which has plagued the villages for years. Chemical fertilizer is a very quick way of replenishing the soil of the badly needed soil nutrients and brings about the necessary crops yield so as to build up the food security base of the farmers.

While provision of subsidized fertilizer was very necessary and important in the first year, there was a recognition that long term subsidy is not viable financially and is not good enough for agricultural sustainability which is best suited for the communities, at the same time there was a plan for a more robust and agriculturally sustainable practices under way, a diversified agriculture using nitrogen–fixing trees and cover crops, organic manure, crop rotation and fallowing, soil conservation, livestock, small scale water management, improved crop storage and other sustainable practices. Farmers were encouraged to engage in planting of fallowing crops not only to improve the soil fertility but also to protect and conserve the environmental biodiversity (Table 5.5). According to Diru (2007) farmers were motivated to engage in fallow planting by given them the opportunity to sell the seed harvested from the fallow planted in the first year of the project. With this motivating strategy, planting was increased from 45 percent adoption in the first year to about 80 percent in the following year and a further projected increase in the subsequent year.

Figure 5.6. Retarded maize plant growth on depleted soil

Source: (MVP 2005)

Table 5.4. Fertilizer and improved maize seed distribution

Source: (MVP 2006)

5.6. Scalability

The success or otherwise of Millennium Village Project especially in promoting food security in Africa will surely be measured in terms of scale of expansion over a large area, covering all the impoverished villages, district, region and nationally. Experimenting only within a small village cluster of around 5000 people without massive expansion will be like a drop in the ocean. According to Mutuo (2007) MVP is categorised into three phases. The first phase is made up of rigorous proof of the concept to show and validate scientifically that community development based on low cost, and integrated interventions can enable impoverished rural areas to achieve all the MDGs. This was the first phase of the project that started in 2004 with Sauri A and B (Figure 4.7). After rigorous baseline assessment and monitoring of the specific MDG related indicators and comparing with the results obtained in the first year of the project, especially in the area of agriculture health and education, the project was extended to the other village within the cluster and that marked the commencement of phase two of the project in the year 2005. According to Mutuo (2007)

there is continuous monitoring and assessment of the project both in phases one and two and some basic lessons learned from phase one are being applied and are building up on the success recorded as well so maximizing the benefit derived from the integrated synergies. He noted further that all attention and focus is on the initial first two phases because that is what is needed to showcase to the whole world and convince some of the reluctant donor so as to garner enough political and financial will for the massive national expansion. Diru (2007) also expressed confidence that MVP will be able to scale up based on the progress recorded so far and effort and attention given to the project within the time limit of five years. He also noted that the project is sure of success because there is guaranteed fund already available for the first five year for the smooth running of the project, so what is needed is the will power and encouragement from all and sundry.

Table 5.5: Fallowing seed distribution among all the villages

5.7. Impact of Crop Yield on Food Security

If crop yield, especially grain yield is the yardstick for measuring food security in Sauri, we can say with great certainty that the community has achieved food security, but food production is one thing and accessibility is another issue. Since the project began in 2004 maize yield has been on the increase. Sauri farmers increased the cultivated area by almost 50 percent; this feat was achieved through the reengagement of the abandoned area which was considered as unsuitable for crop production because the soil has been depleted of the basic soil nutrients and weed infestation problems. With this effort the village recorded a combined effect of 3.9-fold increase in maize production and a massive shift from 43 percent to 166 percent of the basic caloric requirements see (Table 5.1). The second year also witnessed a further increase. The area planted was increased by 12 percent from 325 ha to 364 ha and a corresponding increase of grain yield from 5.0 t/ha to 6.2 t/ha and a combined village effect of 5.4-fold increase in maize production from the pre-programme inception and a shift from basic caloric requirement from 166 percent to 231 percent see (Table 5.1). In 2006, the village generated grain surplus of up to 1,300 t, and the minimum area needed to produce 1.1 t was reduced to 0.18 ha from 0.21 ha used in 2005.This increases in yield and production is a step forward towards food security in the area.

According to Mutuo (2007) the basis of food security is more than only increase in food production, but also needs to empower the farmers economically so they can translate the gain recorded in crop yield to a sort of economical power. He noted that the MVP shares the basis of food security and the popular world bank definition of food security that is “food security exist when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life”. The contribution of farmers to their own food security through their own production can not be underestimated recognising the fact that the majority of them depend on agriculture as the only means of their livelihood, and the fact that most of them cultivate

on very marginal land. Increased production and productivity on this marginal land is surely a smart way of enhancing their food security and strengthening their livelihood basis.

Figure 5.7. Hybrid maize plant

5.7.1. Incomes Generation and Food Security

As discussed earlier, food production is definitely a step forward towards achieving food security among the rural dwellers, but massive food or crop yield is capable of worsening the farmers' situation if not well managed. Increases in yield will generates surplus which will bring down the price of food crop and leave farmers with unsold produce and generate loss in farm produce, especially when farmers have no means of preserving or storing or inability to

create an added value to their produce. In Sauri, farmers were normally offered only $10 per 90 kg bag of dry maize by local middle men who always exploit their situation and make gain out of it. This is less or half of the official price of $20, even at this agriculture still remains the highest source of income for farmers. See Figure 5.5 for income distribution of income in Sauri. Farmers normally sell at this price because of desperation for cash to buy essential materials, and they will later run out of food and buy back maize for as high as $25 a bag. In an attempt to bridge this wide market margin and buffer any price fluctuation, a cereal bank was established to manage farmers produce. The project fund was used to pay farmers the equivalent of $17 per bag. The cereal bank managed to sell the crop at $21 per bag in 2006 and the difference were paid to the farmers after deduction of management and storage fees (Rotich 2007). This method was effectively used to guarantee market for the farmers and assured them a better price, this gave them double the price they would have received by selling to the middlemen and further increase their entitlement to food and provided them a leap into cash economy which is badly needed within the communities

5.7.2. Crop Diversification and Food Security

Following the bumper harvest recorded in the first year of the Millennium Village Project farmers were encouraged and charged to look at agriculture as a business capable of lifting them out of the poverty trap. With an average farm size of 0.8 ha available to farmers, Diru (2007) said concentrating only on maize production will definitely not be able to meet farmers financial obligations and food security need. Crop diversification has been also found to be an effective coping strategy especially in an agrarian economy like that of Sauri. Diversification is a process by which economies become more diverse. At household level this tends to mean adding new activities. Households have diversified portfolios because of several reasons. It helps to lessen the vulnerability of the poor to food insecurity and livelihood failure; it can provide the basis for building assets that permit individuals and households to construct their own escape routes out of poverty and stress. It can also improve the quality and sustainability of natural resources that constitute key assets in rural livelihoods (Ellis 1999).

The ability of farmers or households to create a multiple source of income has been vigorously pursued by the Millennium Village Project to help the farmers, therefore

necessitating ventures into the business of agriculture, where the farmer has to produce not only surplus for income but also a diversity of crops and livestock enterprise for income generation and nutritional diversity. Rotich (2007) noted this was envisioned to be achieved through formation of producer groups, training and carrying out demonstrations. The producer groups were formed through sensitization of the community on the various agricultural enterprises and they in turn registered with the groups they felt comfortable with. The farmers gave preference to the first three enterprises i.e. bananas, tomatoes and onion. The honey bee producer group also attracted a reasonable number of farmers, mostly young farmers. See Table 5.3 for the training on banana producer group training.

5.7.3. Enterprise Development

Diversification to high yielding crops is surely a good way to jump start farmers into the cash economy and help them achieve the much desired economic power, to give farmers an edge, through the enterprise section of MVP, links have been established with some of the cottage industries around so they can source their raw materials directly from the village. According to Rotich (2007) market linkages have been created with Njoro Canning Factory, MACE Food, Dominion Farms and other local market players for supply of herbs, spices, honey, onions, tomatoes and kales. Also off-farm enterprises are being encouraged as well. Up to 18 villagers have been linked with the national oil corporation and they have already started wholesale distribution of kerosene within the village cluster. Effort is being put into an attempt to add value to soyabean, so as to create some form of employment and command a better price. Four farmers have been encouraged and are already raising up to 3000 banana tissue plant for further sales to other farmers. All these enterprise activities are well designed to encourage villagers to imbibe enterprising culture and skill which is a sure way of setting them free from the poverty trap (Rotich 2007).

5.7.4. School Meal and Impact on Food Security

The project recognised the impact which education can have towards poverty eradication which is the root cause of the food security problem. Increased investment in education works directly to enhance the ability of farmers to adopt more advanced technologies and crop-management systems, thereby achieving higher rates of return on land (Rosegrant and

Cline 2003). Most farmers admitted that investment in their children's education will provide them with many opportunities that have eluded them; their children will be able to secure more remunerative non-farm employment which will guarantee them their future livelihood. The school meals programme was created not only to supplement food security by increasing the nutritional intake of the young children, but also to increase enrolment rate and improve the learning ability of the school children. Farmers were made to sign a document pledging to pay back 10 percent of their crop harvest, not only as return of the free subsidy given, but also as their own contribution to the school meal programme. According to Rotich (2007) the programme recorded a huge success by increasing the nutritional intake of the children, increased in school enrolment and increase in over all performance of pupils. Figure 5.8 shows pupils queuing up for their school meal.

Figure 5.8. Pupils queuing up for their free school meal. Source: (MVP 2006)

5.8. Farmers Motivation and Adoption

The major driving force behind the high adoption rate recorded so far in MVP is attributed to the distribution of free or subsidised inputs like fertilizer and hybrid seed. It was so easy to convince the farmers to adopt a particular system because most of the farmers just barely

exist, the poverty rate was so high, crop yield is at the minimum level, and they have no economic power to access inputs and cater for themselves. In this kind of situation farmers are helpless and is coupled with the fact that they understand the good intention of the project planners, that they are in their village to offer them the needed help. Most farmers interviewed were of the opinion that the project is really benefiting them, some admitted that they have never witnessed this kind of intervention and development project before. One farmer in Yala B quipped that MVP is "God sent" and said they have been praying and yearning for this kind of intervention for a long time. Also the dramatic increase in the farm yield in the first year and the opportunity of the assured market for their produce goes a long ways in reinforcing the confidence the farmers have in the project, because of assured market and better price, most farmers interviewed said they were more than willing to reengaged their fallow land for more crop cultivation and working harder to reap the benefit that comes with it.

5.9. Coping Strategy

Coping with adverse situations especially hunger and other food security problems among the Sauri people is vital to their survival and well being. The most common survival or coping methods identified among the farmers is food rationing, eating one square meal of maize meal a day and supplementing it at times with fruit and vegetables is a common practice. Remittance from families and relatives is also another way by which people sustain their livelihood, though only very few farmers admitted receiving remittance from their relatives in the city and even they claim it is not regular and enough to sustain their livelihood. Some of the farmers admitted that their life style is changing since the inception of the MVP, some have engaged in crop diversification, which is now bringing reasonable returns for them to meet up with their financial obligation. Some of the farmers also claim that they keep livestock, especially chicken, which they rear on a free range system. One farmer in Nyaminia A said chicken are very cheap for her to raise because they are free range, they depends on eating insects and live on waste food items within the village, and they can be easily converted to cash whenever it is required to cater for other needs.

5.10. Food Security and Hunger Reduction

Food security is a priority within the Sauri villages, because it is a common problem affecting almost all the villagers and the project planners recognise this as well and it is the reason for giving more attention to activities that directly affects the food security. Most farmers interviewed said the major problem facing them is ability to feed their family. A farmer in Sauri A claimed that if the food problem is taken out of the issue, his problem is half solved and this opinion was shared by most of the farmers interviewed. Most farmers considered food security as only filling their stomach without taken cognizance of balanced or nutritious diet as encapsulated by the project official and they directly link their food status with that of their family. The farmers' emphasis is on household food security and most of them believed increase in farm yield contributed far more to their food security need. Almost all the farmers interviewed have witnessed increase in the crop yield since the inception of the MVP and they attributed this to subsidised input given to them especially fertilizer and hybrid maize seed.

While some of the farmers admitted that increase in their crop yield has improved the food security, some also noted that increase in crop yield has not really translated into significant improvement in their household food security. For example a farmer in Nyananmia B said his maize yield has increased by more that two fold since the inception of the MVP but said he cannot rely only on maize to feed his entire household, because other ingredients are needed which he has to buy from the market like fish, oil and beans. He concluded that it is going to take him some time before he can claim to be food secure considering the size of his household. From claims of this farmer it is obvious that he basically depends entirely on his own subsistence food production for his household food need. His only entitlement to food is through his own production and is also obvious that this farmer has not really benefited from assured and better market created through the cereal bank. The farmer could not generate enough surpluses necessary to give him a leap into a cash market. Therefore, what the farmer is suffering from is poverty and it is this poverty that is preventing him from accessing food through other means.

5.11. Self Reliance and Sustainability

Almost all the farmers interviewed admitted the benefit they have derived from the project, but farmers were asked if they could sustain the progress and gain recorded over a long

period of time without the current assistance being given (See Appendix 1). All the interviewed farmers have mixed feelings about the ability to carry on without the external assistance. While some express confidence that with the rate of progress they were making they should be capable of self sustaining within the 5 years time frame of the project especially in the area of agricultural production and enterprise, but might need help in other sectors, some of the farmers really showed their emotion and wished the assistance and support they enjoyed should continue. For example, a farmer in Silula said she cannot imagine the village without the frequent visits of the officials especially some who she had developed a relationship with and who always responds to their needs

5.12. Environmental Sustainability

Environmental sustainability was like a strange issue before the commencement of the Millennium Village Project in Sauri Village Cluster. Most farmers interviewed said they were all struggling to survive, thus employed all coping methods that could put food on their table and they were less concerned about any sustainability process or practices. Although a few farmers admitted practising some form of environmental sustainability like preservation of trees which they claim they derived fresh air from and sometimes relax under when it is very sunny. Since the beginning of the MVP project most farmers are being sensitized about the benefits of sustainability practices which include environmental protection and increases in crop yield through good soil management practices. The following were identified by farmers as various ways in which they are being engaged in sustainability practices since the inception of the Millennium Village Project.

- Community and forestry and woodlot programme
- Protection of remaining natural and common resources
- Crop and soil management practices
- Biodiversity
- Carbon sequestration and greenhouse gases.

5.13. Relationship between the Farmers and the Project Officials

Most of the women that participated in the group discussion recognized most of the MVP officials even by their personal name. They claimed that the regular visits of the officials to the village mostly on a daily basis has encouraged and improved their personal relationship with the officials and this was also facilitated by the urgent way the MVP officials responded to their personal and communal needs. They said that before the MVP they rarely had any contact with any government official in their village. They said the only contact they had with them was when they have to travel to the nearest city which is Kisumu about 60 km away from their village. They said a lot of respect and appreciation is accorded to the MVP officials because of the interventions they have brought to the village. The researcher also noted this with the way the farmers welcomed the officials whenever they visit the village by their positive attitude for example smiling and offering them fruit and other produce. One farmer expressed some reservation about the continuance of this goodwill because they will want the official to be visiting them all the time, but this cannot be the case because their activities cannot be that personalized and limited to some villages as the vision is to cover all the deprived villages in Kenya.

5.14. General Impact of Millennium Village Project

Most of the farmers in the group discussion admitted an increase in their agricultural production and produce yield, which has in a way improved their nutritional and financial well being. They claimed that the Millennium Village Project has put them in the limelight. They have witnessed an increase in the number of dignitaries and important visitors in their village, both European and African, and this has increased the fortunes of their village. For example, one of the participants pointed to the electricity pole and concluded that is the product of MVP in their village. She said that if it were not for the MVP they would not think of having an electricity supply in the years to come, but said it is now a reality. They also claim that their children's education has dramatically improved within the last two years. The school meal programme has been identified as one of the major reasons for this. Figure 5.5 shows pupils in the queue for their school meal. The children know that by going to school their daily meal is guaranteed and this has increased the school attendance and enrolment rate

5.15. Challenges and Difficulty

One of the major challenges identified by and agreed to by all the Field Officers invited for discussion is neglect of personal and family commitments on their part due to the pressure and tasking nature of the work. They claimed that the work is very demanding and did not give them room for social activities. They said they work very long hours, as one of them put it; there is no closing time in this work. One of the participants also claimed that communicating messages between project and the community sometimes proved difficult and challenging.

Getting full community participation was also one of the critical problems identified. While some of the farmers are more than willing to participate, some are very reluctant, thus costing a lot of time and energy to persuade and explain the benefit they will derive, which is usually assumed that they will understand. Also, the increasing and overbearing influence of some major government officials who are normally looking for any slight opportunity to politicize MVP activities and also to claim the glory was said to be very disturbing to most of the Field Officers. Heavy presence and regular visiting of press and some important visitor was identified as a major challenge also, one participant said some will come with good intention, while some will come and started asking probing and compelling question, which in some cases they were not equipped to provide answers to.

5.15.1. Politics and Corruption within MVP

There is no doubt that MVP has benefited a lot from publicity. Both local and international media have brought the village into the limelight, the village has witnessed a lot of important dignitaries from all over the world, and this has attracted some infrastructure development into the villages especially from the Kenya Government. This might look like a political stunt from the Government, but it really benefited the villagers, as one farmer said, that having electricity in the village so soon is still like a dream to her. While this is quite good for the villagers some of the MVP official admitted that this influx of media and visitors put a lot of pressure on them and sometimes they find it difficult to handle some of them and the overbearing influence of some government officials was said to be disturbing. Then the

media attention and publicity received by the MVP might make them prone to political upheaval because some political miscreants might exploit the publicity to gain some media attention, because they know that whatever happens within the village cluster will definitely attract media attention.

Corruption is another issue that is worth paying proper attention to, because some of the important donors still feel reluctant about committing to any developmental project in Africa. Some have genuine reason to be really worried about the issue of corruption in Africa, especially when it is based on past or recent experience. There is no doubt about it that corruption has seriously hampered or hindered Africa development especially when ones looks at Africa from the prism of corrupt leaders like Mobutu and the Abacha who stashed billions of dollars of their country's money into foreign account, while the majority of their populace languished in extreme poverty. This general perception about corruption was recently reinforced by a popular American talk show host, Bill O'Reilly when he declared that Africa "is a corrupt continent; it's a continent in chaos. We can't deliver a lot of our systems that we send there. Money is stolen. Now when you have a situation like that, where governments don't really perform consistently, where there's just corruption everywhere, how can you cut through that?" (Sachs 2005:189). This high perception of corruption has been consistently used by some as a reason why African countries should not receive support until corruption has been eliminated. Unfortunately such attitudes or approaches will surely fail, because fighting corruption is a long-term process that requires patience, high level political commitment and sustained support from the international community. Poverty fuels corruption, because it renders people powerless. The rural poor have few or no rights or freedom to improve their position (Daniel 1990). It is common practice in Africa to see politician offering money or food to the poor in return for their vote. This issue of corruption was brought forward during the conversation and interview with the MVP Coordinator (see Appendix 2) and he had this to say; "The government of the ten Africa countries where Millennium Villages are presently located are committed to fighting corruption at all level and most of them have anti-corruption crusades or agencies in place and are also committed to development. UNDP and Millennium Promise aim to support their efforts to improve the lives of their people. UNDP and Millennium Promise do place a paramount emphasis on transparent and accountable use of their resources. To this end extensive safeguards are in place to trace the flow of funds in each country and to ensure that the funding reaches the intended and deserved beneficiaries" (Mutuo 2007)

For example, fertilizer and other input distribution are distributed through some specific, trained and accredited agro dealers. The approach involves using a voucher system with information of each farmer's eligibility for subsidized input, limiting them to one or two bags of fertilizer and 10 kg of improved seed, magnitudes of input that are too small to interest large-scale commercial farmers or a traders. The vouchers are then redeemed for inputs at agro dealers, who get paid by the banks where the subsidies are deposited by government or donors (Mutuo 2007). This kind of smart subsidy is an attempt to check corruption that is associated with most failed past projects in Africa.

5.16. Project Sustainability

Most of the participants expressed hope and confidence in the sustainability of the Millennium Village Project because of the calibre of people involved who will go to any length to see the project is successful and sustainable in the long run. They said their reputation and integrity is at stake and that the whole world is focusing on and monitoring the activities of the MVP, so they said there is no room for failure. Also one of the participants said their survival and employment is hinged on the survival of the project, so they will always give their best. Most of the participants agreed that the MVP was designed to last longer than any previous developmental project, because farmers are being trained everyday so as to help them to be useful to themselves, as capacity building is critical to sustainability, and since MVP is a large programme any success recorded from one village will be easily transfer and implemented in another village and the whole of Kenya must be free of hunger, voiced by one of the participants.

5.17. Discussion and General Evaluation

To gain a critical insight behind the concept and approaches involved in the Millennium Village project, it will be very useful to compare the MVP with past developmental project undertaken in Africa, especially the Rural Integrated Project (IRD) of the 1980's and early 1990's. It is especially important to identify whether the MVP learned anything from these failed projects. It will be tragic if the MVP should be allowed to fail like these past projects,

and might further batter the image of Africa, which many people see as a doomed continent where no interventions work, and substantiate the claim by some westerners who consider Africa as too corrupt for anything to work. Though corruption seriously hinders Africa development in so many ways, it should not be used to distract genuine efforts and intervention. Recently most African nations have attained democracy and are reasonably well governed. Ghana, Malawi, Mali and Senegal failed to prosper at the same rate as some of the Asia countries like India, Pakistan, Indonesia and Bangladesh which are even considered by Transparency International to have higher corruption perception ranking (Sachs 2005:191).

Therefore a critical comparison of the MVP and IRD is essential. Just like IRD, MVP is also an integrated and multisectoral intervention approach and they were both designed for the gains in each sector to complement one another and with initial emphasis on agricultural productivity (Mkandawire 1980, DFID 2004). The design and execution of IRD were more complex and it involves different donors with different interests and their interests were well taken care of, unlike MVP which has a direct and streamlined design and is focused on achieving time bound and quantitative goals and promotes a more comprehensive set of sectoral interventions. Also the majority of IRD were situated in a more prosperous areas, and political lobbying was a common practice in sighting of the sites. For example, most World Bank development programmes were based in high-growth areas (Mkandawire 1980), whereas MVP's are sighted in hunger spots and what Sachs (2005) described as poorest of the poor where at least 20 percent of children under 5 are underweight.

IRD projects were often based on insufficient experience of local agricultural systems and were often designed without much local input. They hardly test ran them with local small holder farmers (DFID 2004), whereas MVP interventions, are drawn from the result of technologies and practices that have been proven and tested under similar ecological and socioeconomic conditions (Sanchez *et al.* 2007). For example, the first phase of MVP was test run using two villages, Sauri A and B before further expansion to the rest of the village (Figure 4.1) and while MVP involves government and communities participation, and ownership can be generated by communal efforts through in cash and in kind contributions, the same things cannot be said about IRD projects, which was more like a top down approach. Again the time limit set for the MVP is longer than that of the past IRD projects. MVP has an initial 5 years project plan whereas IRD projects are set with 2-3 years which

were quite short considering the complexity and enormity of problems confronting rural people in Africa.

5.17.1 Weakness and Project Vulnerability

Just like some weakness and limitation associated with most of the past IRD projects, MVP has it is own limitation as well and which can impact negatively on the success of the project if not well managed. Like IRD, MVP is equally a very complex project, which aims to achieve so many things at the same time. The first noticeable problems associated with MVP are level of scale and control. The scale of each project comprises villages totalling up to 5000 to 55,000 especially at the initial first phase of the project. The first two phases are a pilot project and the project implementation depends heavily on available finance and implementation capacity. The site or area under the project cover is not large enough to warrant massive infrastructural development, for example new water treatment plants or large scale irrigation systems and the area is also not commercially large enough to justify inflow of foreign buyers sourcing agricultural raw materials or to promote external or foreign investment in processing facilities. MVP village cluster is just an isolated group of people and villages for the development project, and there is danger associated with this especially when the other nearby villages do not benefit from the project within the shortest period of time. This is capable of creating and generating tension, jealousy and inflow of people from the less developed villages, and can generate serious resentment in the other surrounding communities.

Also the project is very vulnerable to political tension or upheaval and constitutes an easy target for political thugs to gain easy publicity because MVP enjoys a lot of media attention. This problem can only be cushioned or buffered by national expansion and this even run contrary to Sachs' assertions that MVP can work under all political regimes. This assertion is not practicable considering how volatile some countries might be and this may even run contrary to the conditions set out for site selection for the MVP, which state that a country must be reasonably well governed before it can be considered for the MVP. This statement by Sachs could be described as too ambitious. How would any development project be possible in a kind of failed state like Somalia or Sudan or even in a crisis ridden country like

Zimbabwe. We have seen how even ordinary aid distribution in Zimbabwe was seriously hampered.

Another weakness of the MVP is the problem of project sustainability, setting a limited time bound. The project commits to 5 years of funding and anticipates that the community will become economically self-sustaining in commercial farming and non-farm activities within this time period. So in event of the project not being able to achieve this feat, then what will happen? The project should be flexible enough to accommodate and cater for any short fall recorded towards achieving the said target; otherwise it might end up like the past IRDs which were designed to last for only between 2-3 years. Again the problem of scalability is equally important. Chances for success of the MVP rest naturally, on whether the increased government budget of ODA for public goods actually materializes and whether the kinds of intervention pioneered by MVP can be replicated considering the capital and human resources needed (Sanchez *et al.* 2007). If the villages remain an island of prosperity among unrelenting poverty, as the Africa says goes “one rich man in the midst of pauper, they are all paupers”. The progress made will surely be over run by in-migration and undermined by neighbourhood jealousy.

Chapter Six

Conclusion and Recommendation

The broad aim of this study was to evaluate the contribution of Millennium Village Project to food security in Africa. And the specific objectives of this study were;

1. To review factors mitigating against food security in Africa

2. To describe that rationale and operation of the Millennium Village with specific to Millennium Village Project in Kenya

3. To evaluate the effectiveness of the Millennium Village Project in Kenya in promoting food security in local communities

These have been achieved using a qualitative approach, which is essentially a multi-method approach to an investigation. The first objective of this study, which is reviewing factors militating against food security in Africa, was achieved through the combination of an in-depth literature review and personal conversation with farmers in Sauri village cluster, the researcher was able to study and understand first hand information about the problems confronting farmers towards their food security needs. Poor soil fertility and degraded soil hindered agricultural productivity, inability of farmers to access basic farming input, incidence of drought, poor and ineffective marketing opportunities, all these put together seriously hamper the farmers' ability to enhance agricultural productivity and further makes it difficult for them to escape the poverty trap and attain reasonable food security level. Also lack of off-farm employment opportunities have downgraded farmers to economic pauperisation and limited the food entitlement access of the villagers. The high prevalence of HIV/AIDS further compounded agricultural productivity which is the mainstay of the rural livelihood. The effect of malnutrition is further worsening because HIV infected individuals actually have greater nutritional requirement than the rest of the population. According to Gillespie and Haddad (2001) they required up to 50 percent more protein and 15 percent more calories

At a macro level, the lack-lustre's attitude and poor policies of most African leaders towards agricultural development have seriously impacted negatively on food security in Africa. The problem usually arises when the focus on policies, structure and institution is put above that of the people especially the rural poor which make up close to 70 percent of the African populace. For example, as noted by Senghor (1989), the share of public investment in agriculture barely exceeded 10 percent of total national investment, even in countries where export earnings from agriculture are over 80 percent of total earnings and even then only a meagre amount trickles down to the food sector and this shows a lot of bias towards cash crops for export which benefited only the African elite and multinationals. Other problems like corruption, nepotism and tribalism prevented development necessary for improvement of food security in the continent. Furthermore, poverty has been attributed as the main cause of food insecurity in Africa. Poverty has been on the rise and is preventing people from accessing basic necessities of life. Poverty has compounded the incidence of hunger, malnutrition and other food security problems in Sauri, especially before the commencement of the Millennium Village Project. Poverty level was on the increase from 41 percent in 1994 to 58 percent in 2002 and up to 64 percent in 2003 (MVP 2005). Estimates of poverty in Sauri are much higher than the national average. The national statistics reported in 1994 and 1997 showed a marked increase in poverty level over the three years period time. Over 70 percent of households had per capital income of less than $0.50 a day (MVP 2005).

Food security was at a low point with two square meals a day only the preserve of few. Most people had adapted to the coping strategies of eating one square meal ration of maize meal in a day. Achieving food security according to Sen (1981) requires that the aggregate availability of physical supplies of food is sufficient that household have adequate access to those food supplies through their own production, through the market or through other sources; and that the utilization of those food supplies is appropriate to meet the specific dietary needs of individual. This was not the case prior to the introduction of the Millennium Village Project in Sauri Kenya and in so many African villages across the continent.

The second objective of the study was largely achieved through the combination of interview and conversation with the project officials and the review of the privileged reports on MVP. The Millennium Village Project was muted out of the belief that Africa is incapable of achieving the Millennium Development Goals without the needed external help and out of the special, peculiar needs and situation of Africa. This is due to the extreme shortage of

productive capital in rural parts of Africa, which houses more that 70 percent of the populace. This population is characterised by high poverty rate, they live below subsistence level and capital saving is hardly possible because they use all the available resources to survive. Poverty prohibits them from self-financing farm inputs on the open market, and the lack of collateral and high transactional costs prevent the finance of inputs through market based credit. This coupled with the high risk associated with the agricultural system in Africa and the general perception of poor returns on agricultural investment, makes it more difficult for the rural household to escape the poverty trap; the rural poor need help to help themselves, thus necessitating an intervention project like MVP. Millennium Village Project is an integrated approach which is closely related to the sustainable livelihood approach; the underlying assumption is that the multifaceted nature of poverty in rural Africa can be tacked through a well directed public-sector investment that will raise rural productivity above the subsistence level. Thus it will be capable of creating private-sector saving and investment by significantly raising the capital stock of the household and rural communities in several ways and large enough to escape the poverty trap.

The Millennium Village Project started around March 2004 and the first was launched in Sauri, Kenya in December of the same year. Its aim was to prove the concept that the poverty trap can be overcome and the Millennium Development Goals can be achieved in the rural African villages through a well targeted and costed multisectoral intervention in agriculture, health, education, infrastructural development and local capacity building. The programme recommended an investment cap of $110 per capita per year over a 5 year time limit. The methods focus on the above interconnected intervention efforts and hope to benefit from the interconnectivity, synergies and tradeoffs. For example, progress made on food production is expected to translate to a better nutritional intake which in turns will translate to a better health and stimulate learning, thus improving educational standard.

The third objective was achieved through the combination of data analysis, and interviews with the project officials and farmers in Sauri village cluster. Results obtained show considerable effort towards increase in agricultural productivity, and skills and capacity building necessary for various enterprise activities. The project recognises that achieving food security within the villages is critical to the necessary economic development. Hungry minds are not capable of achieving the needed development; reason for given food security a major attention and prioritising it. Increase in food and agricultural productivity is crucial to

achieve this, considering the fact that farmers cultivate a marginal land. A great deal has been achieved in this direction, the quick and direct intervention of giving farmers input subsidy especially fertilizer which is quite necessary as a quick fix to replenish the soil of the necessary nutrients and to stimulate adoption and acceptability by the farmers of the programme and the supply of hybrid maize seed which is also important to increase the yield on the marginal farm land. The dramatic increase in yield of up to 3.9 fold in the first year and up 5.4 fold in the second year coupled with the village wise generation of grain surplus has provided the farmers with stepping stone to integrate them into the cash economy. The recognition of the fact that food production alone for consumption is not enough and not capable of guaranteeing farmer food security, and the need to open up other entitlement avenues for the farmers prompted the formation of producer groups which encourage farmers to look at farming as a business capable of giving them the needed economic power. The formation of a cereal bank which managed the farmer's surplus has stimulated productivity and given the farmers the opportunity to receive double the amount they normally received prior to the commencement of MVP. This and creation of other off farm enterprising activities are all woven together to tackle poverty which is responsible for various food security problems with the communities. It was too early to see the result and impact of this on food security within the village, but surely if well managed it is capable of given the communities the necessary leap into the cash economy and strengthen their livelihood.

However, the success or otherwise of the MVP in ensuring food security will surely be measured in terms of the ability to further expand the project to other villages in the region and the ability to manage the nationwide scaling up of the project. The fact is that the initial first two phases of the MVP are a pilot project. The promotion of economic activities, such as this on a small scale is easy to control, because it can easily be integrated into local markets, and there is capacity to absorb that at the moment, but the concern is how to manage it at a larger scale. Generating the kind of grain surplus witnessed in Sauri villages at national level can create a serious problem for the farmers, unless articulate measures are put in place to manage it. Also most of the success recorded in Sauri especially in agricultural productivity was partly due to extension activities of the project officials. To launch this kind of operation at national level will require a large number of extension officers which might be difficult to come by. Then the massive infrastructure kind of development being undertaken in Sauri villages might be of difficult, considering the kind of financial capital required for such large projects and because the project depends heavily on external donors. Continuous funding of

the project by the foreign donors might be difficult to guarantee in the long run, considering the current global financial crisis. Apart from all these challenges MVP has been able to bring donors attention back to rural areas, which had been neglected for quite sometimes. Further studies into more recent and future activities of the MVP, especially towards the end of the initial fifth year will be helpful to determine the full impact of the various interventions employed in MVP, especially as it affects food security in rural Africa. Also the potential benefits of organic agriculture should be exploited, the benefits associated with low inputs which dictate most of the organic practices will not only benefit the farmers, but the premium price which organic produce commands in the market will enhance the farmers income and strengthen their livelihood.

References:

Ahmed, A., Hill, R., Smith, L., Wiseman, D., and Frankenburger, T. (2007) *The World's Most Deprived: Characteristics and Causes of Extreme Poverty and Hunger. 2020 Discussion Paper 43.* Washington, D.C.: International Food Policy Research Institute

Arksey, H. and Knight, P. (1999) *Interview for Social Scientist*. London: Sage Publications

Bebbington, A. (1999) 'Capitals and Capabilities: A Framework for Analyzing Peasant Viability, Rural Livelihoods and Poverty'. *World Development*, 27, (12) 2021-2044

Black, T. R. (1999) *Doing Qualitative Research in the Social Science: An Integrated Approach to Research Design, Measurement and Statistics.* London: Sage Publications

Blumer, H. (1969) *Symbolic Interactionism: Perspective and Method*. Los Angeles: University of California cited in Flick, U. (2002) *An Introduction to Qualitative Research*. London: Sage Publications

Borton, J. and Shoham, J. (1991) *Mapping Vulnerability to Food Insecurity: Tentative Guidelines for WFP Offices*. Study commissioned by the World Food Programme. London, Relief and Development Institute

Bowbrick, P. (1986) 'The Causes of Famine: A Refutation of Professor Sen's Theory'. *Food Policy*. 11, 105-124 Cited in Devereux, S. (2001) *Sen's Entitlement Approach: Critiques and Counter-Critiques.* Oxford: *Development Studies*

Briggs, S. R., Tenywa, M. M., and Nakileza, B. R. (1998) *A Review of Past and Present Agricultural and Development Research in the Highland area of Uganda*. Kampala: DFID

Brklacich, M., Smit, B., Byrant, C. R., and Dumanski, J. (1990) 'Impact of Environmental Change on Sustainable Food Production in Southwest Ontario'. *Land Degradation and Rehabilitation* 1, (4) 291-303

Burns, R. B. (2000) *Introduction to Research Methods*. London: Sage Publications

Cannon, T. (1991) 'Hunger and Famine: Using a Food System Model to Analyse Vulnerability'. Cited In Devereux, S. (2001) *Famine in Africa*. London: ITDG Publishing

Carney, D. (1999) *Approaches to Sustainable Livelihood for Rural Poor*. ODI Poverty Briefing

Chambers, R. and Conway, G. (1992) *Sustainable Rural Livelihoods: Practical Concept for 21st Century*. IDS Discussion Paper, 296, Brighton: Institute of Development Studies

Chen, S. and Ravallion, M. (2004) *How Have the World's Poorest Fared since the Early 1980s? Policy Research Paper 3341*.Washington, D C: World Bank

Corbett, J. (1998) '*Famine and Household Coping Strategies*'. *World Development* 16, (9) 1099-1112

Cox, T. S., Picone, C., and Jackson, W. (2004) 'Research Priorities in Natural Systems Agriculture.' Cited in UN (2008) *Organic Agriculture and Food Security in Africa*. New York: United Nations

Creswell, J. (1997) *Qualitative Inquiry and Research Design*. *Choosing Among Five Tradition.* Los Angeles: Sage Thousand Oaks

Daniel, G. (1990) *Environment and Mass Poverty. Options for Rural Development*. London: Billing and Sons
.

Davidson, J., Myers, D., and Chakraborty, M. (1992) *No Time to Waste: Poverty and the Global Environment*. Oxford: Oxfam

Denzin, K. N. and Lincoln, S. Y. (1998) *Collecting and Interpreting Qualitative Materials.* London: Sage Publications

Denzin, K. N. and Lincoln, S. Y. (2005) *The Sage Handbook of Qualitative Research. London:* Sage Publication

Devereux, S. (2000) 'Famine in the Twentieth Century'Cited In Devereux, S. (2001a) Sen's Entitlement Approach: Critiques and Counter- Critiques. *Oxford: Development Studies* (29) 3. Available from <http://www.sas.upenn.edu/~dludden/FamineMortality.pdf>[Accessed August 2008].

Devereux, S. (2001a) Sen's Entitlement Approach: Critiques and Counter- Critiques. Oxford: *Development Studies* (29) 3. Available from <http://www.sas.upenn.edu/~dludden/FamineMortality.pdf.> [Accessed August 2008]

Devereux, S. (2001b) 'Livelihood Insecurity and Social Protection: A Re-emerging Issue in Rural Development *Development Policy Review,* 19, (4) 507-519

Devereux, S. and Maxwell, S. (2001) *Food Security in Sub-saharan Africa*. London: ITDG Publishing

De Waal, A. (1989) *Famines That Kills: Darfur, Sudan, 1984-1985*. Oxford: Clarendon Press

De Waal, A. (1990) A Re-assessment of Entitlement Theory in the Light of Recent Famines In Africa. Cited in Devereux, S. (2001) Sen's Entitlement Approach: Critiques and Counter-Critiques. Oxford: *Development Studies*

De Waal, A. (1991) 'Emergency Food Security in Western Sudan: What is it for?' Cited in Maxwell, S. (1991) *To Cure all Hunger*. London: IT Publication

DFID (2000): Sustainable Livelihoods Guidance Sheets. Department for International Development. Available from <www.livelihood.org/info/info_guidancesheets.htm.> [Accessed August 2008]

DFID (2004) Rural Development in Africa: A Synthesis of Project Experience, Evaluation Summary 400 (DFID, London). Available from < http://www.dfid.gov.uk/aboutdfid/performance/files/ev400s.pdf.>[Accessed October 2008]

Diru, W. (2007) (Personal Communication) Agriculture Coordinator, The Millennium Village Project. Kisumu, Kenya

Dixon, J., Taniguchi, K., and Wattenbach, H. (2004) *Approaches to Assessing the Impact of Globalization on African Smallholders*. Rome: FAO

Dreze, J. and Sen, A. (1989) *Hunger and Public Action*. Oxford: Clarendon Press

Drinkwater, M. and McEwan, M**.** (1992) *Household Food Security and Environmental Sustainability in Farming Systems Research: Developing Sustainable Livelihoods.* Paper presented to the Adaptive Planning Research Team Bi-annual Review Meeting, Mangu, Zambia, 13-16 April.

Ehrlich, P. R. and Ehrlich, A. H. (1990) *The Population Explosion*. New York: Simon and Schuster

Ellis, F. (1999) *Rural Livelihood Diversity in Developing Countries: Evidence and Policy Implications*. Overseas Development Institute, London.

Ellis, F and Edward, A. (2004) *Livelihood Diversification and Natural Resources Access Working Paper No 9*. Overseas Development Group: University of East Anglia

Engh. Stoukal, I. E. L. and Du Guerny, J. (2000) *HIV/AIDS In Nambia: The Impact on the Livestock Sector.* Rome: FAO

Evans, L .T. (1998) *Feeding the Ten Billion.Plants and Population Growth*. Cambridge: Cambridge University Press

FAO (1996) *Rome Declaration on World Food Security and World Food Summit Plan of Action*. Rome: FAO

FAO (2002) World Agriculture: *Towards 2015/2030. Summary Report*. Rome: FAO

FAO (2004) *The State of Food Insecurity in the World*. Rome: FAO

FAO (2006) *The State of Food Insecurity in the World*. Rome: FAO

FAOSTAT (2008) World poverty Map available from <http://www.fao.org/faostat/foodsecurity/FSMap/map14_en.htm.> [Accessed, August 2008]

FAO/WHO (1999) *Codex Alimentarius Commission Guidelines for the Production, Processing, Marketing and Labelling of Organically Produced Food*. Rome: The Codex Alimentarius Commission, Joint FAO/WHO Food Standard Programme

Fine, B. (1997) Entitlements failure. Development and Change, 28, 617-647.Cited in Devereux, S. (2001) Sen's Entitlement Approach: Critiques and Counter- Critiques. Oxford: Development Studies (29) 3. Available from <http://www.sas.upenn.edu/~dludden/FamineMortality.pdf.>[Accessed August 2008]

Flick, U. (2002) *An Introduction to Qualitative Research*. London: Sage Publications

Frankenberg, T. R. and Goldstein, D. M. (1991) 'Food Security, Coping Strategies and Environmental Degradation.' *Arid Lands Newsletter* 30, 21-27, Office of Arid Land Studies, University of Arizona

Gans, H. (1962) *The Urban Villagers: Group and Class in the Life of Italian-Americans*. New York: Free Press

Gibbon, P. and Bolwig, S. (2007) *The Economics of Certified Organic Farming in Tropical Africa: A preliminary Analysis.* SIDA DIIS Working Paper No 2007/3 (SAFE) No 7

Gillespie, S. and Haddad, L. (2001) 'Effective Food and Nutrition Policy Responses to HIV/AIDS: What We Know and What We Need to Know. *Journal of International Developmen*t 13, 487-511

Gillham, B. (2000) *The Research Interview.* London: Continuum Press

Glaser, B. G. and Strauss, A. L (1967) *The Discovery of Grounded Theory: Strategies for Qualitative Research.* New York: Aldine de Gruyter

Gliessman, S. R. (2005) *Agroecology and Agroecosystems'* In UN (2008) Organic Agriculture and Food Security In Africa. New York: United Nation

IFOAM (2002) *International Federation of Organic Agriculture Movements Basic Standards for Organic Production and Processing*. Tholey-Theley, Germany: IFOAM

Ilbery, B., Chiotti, Q. and Rickard, T. (1997) *Agricultural Restructing and Sustainability. A Geographical Perspective.* Wallingford: CAB international

Jayne, T. S., Khatri, Y., Thirtle, C., and Reardon, T. (1994) 'Determinants of Productivity Change Using a Profit Function: Smallholder Agriculture in Zimbabwe'. *American Journal of Agricultural Economics* 76, 613-618

Jayne, T. S., Rubey, L., Chisvo, M. and Weber, M. T. (1996) *Zimbabwe Food Security Success Story: Policy Synthesis No. 18.* Office of Sustainable Development and Office of Agriculture and Food Security, Global Bureau, USAID

Kherallah, M., Delgado, C., Gabre-Madhin, E., Minot, N., and Johnson, M. (2000) *Reforming Agriculture In Africa*. Baltimore: John Hopkins University Press

Klinterberg, R. (1977) *Management of Disaster Victims and Rehabilitation of Uprooted Communities*: Addis Ababa: Relief and Rehabilitation Commission.

Kollmair, M and Gamper, J. (2002) *The Sustainable Livelihood Approach*. [Online] Zurich: Development Study Group Zurich. University of Zurich Available from <http://www.nccr-pakistan.org/publications_pdf/General/SLA_Gamper_Kollmair.pdf> [Accessed August 2008]

Kvale, S. (1996) *Interviews: An Introduction to Qualitative Research Interviewing*. London: Sage Publications

Lampkin, N. H. and Padel, S.(1994) *The Economics of Organic Farming*: *An International Perspectives*. Wallingford: CABI Publishing

Lappe Moore, F., Collins, J., and Rosset, P. (1998) *World Hunger 12 Myths*. London: Earthscan

Leisinger M. K, Schmitt, K., and Rajul, P. L. (2002) *Six Billion and Counting: Population and Food Security In the 21st Century*. Washington, D.C: International Food Policy Research Institute

Limb, M. and Dwyer, C. (2001) *Qualitative Methodologies for Geographers: Issues and Debates*. London: Arnold

Malthus, T. R. (1994) *An Essay on the Principle of Population.* Cambridge: Cambridge University Press

Map of the World (2007) Available from <http://www.mapsofworld.com/kenya/> [Accessed August 2007]

Mason, J. (1996) *Qualitative Researching*. London: Sage Publications

Mason, J. (2002) 2nd edn. *Qualitative Researching*. London: Sage Publications

Mason, J. (2003) 2nd edn. *Sustainable Agriculture*. Australia: CSIRO Publishing

Maxwell, S. (2001) The Evolution of Thinking about Food Security In Devereux, S and Maxwell, S (2001) *Food Security in Sub-Saharan Africa*. London: ITDG Publishing

Maxwell, S. (1996) Food Security: A Post-Modern Perspective. *Food Policy*, 21, (2) 155-170. Cited In Devereux, S and Maxwell, S (2001) *Food Security in Sub-Saharan Africa*. London: ITDG Publishing

Maxwell, S. and Frankenberger, T. (1992) *Household Food Security Concepts, Indicator and Measurement*. New York: UNICEF

Maxwell, S. and Smith, M. (1992) 'Household Food Security: A Conceptual Review.' Cited in Maxwell, S. and Frankenberger, T. (1992) *Household food security: concepts, Indicators, and Measurements: A Technical Review*. New York: UNICEF

Messer, E. and Cohen, S. J. (2004) Breaking the Links Between Conflict and Hunger in Africa. 2020 *Africa Conference Brief No.10*. Washington DC: IFPRI

Mkandawire, T.(1980) The World Bank and Integrated Rural Development in Malawi, Working Paper No. 1 *Council for the Development of Economics and Social Research in Africa*. Darkar

Mutuo, P. (2007) (Personal Communication) Science Coordinator, The Millennium Village Project. Kisumu, Kenya: 07.2007

MVP (2005) *Millennium Village 1st Annual Report*. Kisumu Kenya

MVP (2006) *Millennium Village 2nd Annual Report*. Kisumu Kenya

Mwaniki, A. (2006) Achieving Food Security in Africa: Challenges and Issues. Cornell University. Available from <http://www.un.org/africa/osaa/reports.html> [Accessed August 2008]

Nijkamp, P. and Vindigni, G. (2002) 'Food Security and Agriculture Sustainability; An Overview of Critical Success Factors.' *Environmental Management and Health Journal* 13, (5), 495-511

Nolan, P. (1993) 'The Causation and Prevention of Famines: A Critique of A.K. Sen' Cited in Devereux, S. (2001) *Sen's Entitlement Approach: Critiques and Counter-Critiques*. Oxford: *Development Studies*

NOSB (2001) *Principles of Organic Production and Handling*. *National Organic Standard Board*. State College, PA: NOSB

Oshaug, A. (1995) 'The Composite Concept of Food Security' Cited in Devereux, S. and Maxwell, S. (2001) *Food Security in Sub-Saharan Africa*. London: ITDG Publishing

Osmani, S. (1995) 'The Entitlement Approach to Famine: An Assessment' Cited in Devereux (2001) *Sen's Entitlement Approach: Critiques and Counter-Critiques*. Oxford: *Development Studies*

Pretty, J. (2003) 'Social Capital and the Collective Management Resources'. *Science* 302, 1912-1915

Pretty, J. and Hine, R. (2001) *Reducing Food Poverty with Sustainable Agriculture: A Summary of New Evidence*. Final Report from the SAFE-World Research Project. Colchester: University of Essex

Rangasami, A. (1995) 'Failure of Exchange Entitlement" Theory of Famine: A Response' *Economic and Political Weekly*. 20, 1747-1752. Cited in Devereux, S. (2001) Sen's *Entitlement Approach: Critiques and Counter-Critiques*. Oxford: Development Studies

Rau, B. (1991) *From Feast to Famine. Official Cures and Grassroots Remedies to Africa's Food Crisis*. London and New Jersey: Zed Books

Richardson, T. E. (1996) *Handbook of Qualitative Research Methods for Psychology and Social Science*. Leicester: PBS Books

Riches, M. (1997) *First World Hunger: Food Security and Welfare Politics*. London: Macmillan Press

Robson, C. (2002) *Real world Research: A Resource for Social-scientist and Practitioner-Researcher*. Oxford: Blackwell

Rosegrant, M. and Clime, S. (2003) 'Global Food Security: Challenges and Policies'. *Science* 302, 1917-1919

Rossman, G. B. and Rallis, S. F. (1998) *Learning in the Field: An Introduction to Qualitative Research*. Thousand Oaks: Sage Publications

Rotich, D. (2007) (Personal Communication) Enterprise Coordinator, The Millennium Village Project. Kisumu, Kenya: 07.2007

Russell, B. H. (2002) *Research Methods in Anthropology: Qualitative and Quantitative*. Los Angeles: Altamira Press

Sachs, J. D. (2005*) The End of Poverty.* New York: Penguin

Sanchez, P. A., Palm, C., Sachs, J. D., Denning, G., Flor, R. (2007) 'Poverty and Hunger Special Features. The African Millennium Villages.' *The Academy of Science* (104) 43, 16775-16780

Sapsford, R. and Jupp, V. (1966) *Data Collection and Analysis*. London: Sage Publications

Sen, A. (1981) *Poverty and Famines*: *An Essay on Entitlement and Deprivation*, Oxford: Clarendon Press

Sen, A. (1982) *Poverty and Famines*: *An Essay on Entitlement and Deprivation* New York: Oxford University Press

Senghor, J. C. (1989) *Towards a Dynamic African Economy*: *Adebayo Adedeji: Selected Speeches and Lectures, 1975-1986*. London: Frank Cass

Scoones, I. (1998) *Sustainable Rural Livelihood: A Framework for Analysis*. IDS Working Paper 72. Brighton: Institute of Development Studies

Sijm, J. (1997) *Food Security and Policy Intervention in Sub-Saharan Africa: Lesson from The Past Two Decades*. Amsterdam: Thesis

Silverman, D. (2000) *Doing Qualitative Research: A Practical Handbook*. London: Sage Publications

Silverman, D. (2001) 3rd edn. *Qualitative Data: Methods for Analysing Talk, Text and Interviews*. London: Sage Publications

Silverman, D. (2006) *Interpreting Qualitative Data: Methods for Analysing Talk, Text and Interviews.* London: Sage Publications

Smil, V. (1994) 'How Many People can the Earth Feed'. *Population and Development Review* 20, (2) 91-255

Smil, V. (2000) *Feeding the World*. Cambridge Massachusetts: MIT Press

Swanson , T.M. (1996) The *Economics of Environmental Degradation: Tragedy for the Commons.* Cheltenham: Edward Elgar

Swift, J. and Hamilton, K. (2001) 'Household Food and Livelihood'. In Devereux, S. and Maxwell, S. (2001) *Food Security in Sub-Saharan Africa*. London: ITDG Publishing

Thomas, R. (1996) *Statistical Sources and Database.* London: Clark

UN (1975) Report of The World Food Conference, New York and Rome 1974' Cited in Devereux, S. and Maxwell, S. (2001) *Food Security In Sub-Saharan Africa*. London: ITDG Publishing

UN (2008) *Organic Agriculture and Food Security in Africa*. New York: United Nations

UNDP (2005) *Investing in Development, A Practical Plan to Achieve Millennium Development Goal*. New York: Millennium Village Project

USDA (1980) Report and Recommendation on Organic Agriculture. Washington D.C: US Government Printing Office: 94

Von Braun, J., Teklu, T., and Webb, P. (1998) *Famine in Africa: Causes, Response and Prevention.* Baltimore: John Hopkins University Press

Wolde-Mariam, M. (1984) *Rural Vulnerability to Famine in Ethiopia* 1958-1977. Addis Ababa, Ethiopia: RRC

World Bank (1995) In Sanchez, P. A. Shepherd, K.D., Soule, M. J., Place, F. M., and Buresh, A. (1997) Soil Fertility Replenishment in Africa: An Investment in Natural Resources Capital. *Soil Science Society of America*. Madison, USA Special Publication 51: 1-27

World Bank (2000) *World Development Report 2000/2001: Attacking Poverty*. Washington DC: World Bank. Cited in Devereux, S. and Maxwell, S. (2001) *Food Security in Sub-Saharan Africa.* London: ITDG Publishing

Appendix 1

Farmers Interview Guideline

1. Farming types……

2. Have you witnessed this kind of intervention before?

3. Adaptability and motivation for adoption……

4. How would you describe your food situation before the project…….

5. What does food security means to you……..

6. How do you cope with food security problems?

7. Was your harvest enough to provide for your family until the next harvest?

8. Income generation…….

9. Types of intervention

10. Any other income generating activities you do apart from farming?

11. Crop yield / output

12. Access to loan or finance

13. How has MVP impacted on you and your household?

14. Project sustainability and environmental sustainability practices

15. Self reliance…….

16. How do you see yourself and the village in the next five years?

Appendix 2

MVP Official Interview Guidelines

1. Why the Millennium Village Project? What makes it unique, hasn't this been done before?

2. Why the location or citing of the villages?

3. Major financier/ the key actor involved in the MVP

4. What is the cost implication?

5. What are the motivating factors behind the project?

6. What does food security mean to you? And why is it a priority within the MVP?

7. How will this effort be scaled up? 12 villages alone won't prove that poverty can be ended in Kenya, will they?

8. How are national and local government involved?

9. Will the MVP be sustainable in the long run?

10. What are the major challenges?

11. Is corruption a concern within the MVP? And how do you intend to manage it?

12. In your candid opinion do you think MVP is capable of achieving the MDGs, especially overcome the problem of food security in Africa?